Waucoba News

A Contribution from the Bishop Museum & Historical Society
Edited by: Enid A. Larson
Box 265, Big Pine, Ca. 93513

Volume 1 No. 1
Winter - 1977

G R E E T I N G S

from

Sierra Nevada East

ǂǂǂǂǂ

This sheet begins as a public service and is dedicated to the purpose of communicating natural history notes from this region of INYO - MONO counties.

The unique and highly diversified plant and animal communities of this region of eastern California provide limitless opportunity for study and investigation, especially in the fields of distribution of species in time and geography, and for study of ecological relationships.

Notes that are contributed to this sheet must be submitted in writing, giving place, time and location of observations, observer's name, species and species number if collected as well as the institution at which the specimen is placed on file.

ǂǂǂǂǂ

Submitted materials will be reviewed by

Botany - Mary deDecker, Independence
Ornithology - Tom Heindel, Big Pine
Entomology - D. Giuliani, Big Pine
Mammalogy - Enid A. Larson, Big Pine
Herpetology -
Geology -
Palaeontology - John Mawby,
Deep Springs College, Dyer, Nev.

ǂǂǂǂǂ

If you wish to receive future copies of WAUCOBA NEWS and to be on the regular mailing list for the year, please send 3 STAMPED, SELF-ADDRESSED envelopes to

WAUCOBA NEWS
Box 265
Big Pine, Ca. 93513

ǂǂǂǂǂ

CONGRATULATIONS
to
MARY DEDECKER, Owens Valley Botanist

Her recent collections have yielded one newly described genus of shrub in the Buckwheat family, DEDECKERA EUREKENSIS, from the Last Chance Range in Eureka Valley
and
a newly described variety of Loco,

ASTRAGALUS LENTIGENOSUS PISCINESIS from the Fish Slough area north of Bishop. This variety has been described by Dr. Barnaby in New Ork, a specialist in the field of Astragalus.

DEDECKERA is the first new genus discovered in California since 1949 when Miss Annie Alexander collected the Dune Grass (Swallenia alexandrae). Both of these new genera are endemic to the Eureka Valley and to INYO COUNTY.

ǂǂǂǂǂ

LEWISIA SIERRAE Ferris is now known to extend northward from Mt. Conness to Alpine County, thanks to the report of its range extension by its collector, Dr. Dean W. Taylor, Research Botanist. He gives the new locations as Red Lake Peak, el. 2910 m., and Hawkins Peak, el. 3000 m. Specimens are on file at CAS and at U.C. Davis herbaria.

ǂǂǂǂǂ

OVIS CANADENSIS CALIFORNIANA:- The rarely seen Sierran Bighorn sheep are always of deep interest. John Wehauser, Big Pine, is making an indepth study of this species. He reports that this mild winter has seen 30 lambs added to the Baxter Herd; that last year at least 20 lambs were produced. These additional numbers may bring this herd to a point at which it is rapidly reaching the limits of its food supply.

ǂǂǂǂǂ

MONARCH BUTTERFLIES reported from Saline Valley by D. Giuliani. Hundreds were in a state of lethargy, hanging from upper branches of the Creosote Bush, (Larrea tridentata) 15 Dec. 1976. So far as is known this is the first report of overwintering of this species in the desert area of Inyo County. Ambient Temperature was 10° C at mid-day. Dick Westmeyer, BLM, reported seeing Monarchs flying in Willow Creek Cyn. in Saline Valley on a warm, sunny day in the second week of January, 1977.

PAINTED LADY BUTTERFLIES:- Watch for Migration. These butterflies migrate every 4 to 7 years. The last big migration was in 1973. 1977 could be another migration-year but probably this will not occur until 1978. Flights tend to be to the north and west. Observers are needed to check by measurement the exact direction of flight, give numbers counted in any timed period passing a specific point, time of day and height of flight above ground. Send records to Derham Giuliani, Big Pine, Ca. 93513.

SAND DUNE BEETLES:- Click beetles of the genus Cardiophorus are active in January and February. Several new species are in process of being described from our area. Scarab beetles, genus Aegialia are also being studied. Their populations show evolution in progress, not only in loss of flight with accompanying reduction in wing size but in changes in behavior. Those with wings and flight are active in mid-day. Flightless forms with reduced wing size are active only at dawn and at dusk. Populations along a geographic north-south gradient show individuals with fully developed wings to those with small-sized functionless wings.

PLEOCOMA, the rain beetle, emerges in Big Pine Cyn. with the melting of the snow, usually in January. This year with no snow at their elevation, only a few were seen flying on 24 Jan., 2 days after a rain.

+++++

SAGEBRUSH CHIPMUNK:- Eutamias minimus scrutator, is the smallest of all of the species of western chipmunks. Although its southern limit of range was thought to be Mazourka Cyn., in 1974 and again in 1975, D. Giuliani and I located this species in a large sagebrush basin, at least 30 miles farther south--between the old mining town of Cerro Gordo and Mexican Spring, near the crest of the Inyo Mts. (eal).

WINTER BIRDS OF THE EASTERN SIERRA

This winter, 1976-77, has been mild and rather unspectacular from the bird-watcher's viewpoint.

Tom and Jo Heindel report the following:

1. GREEN HERON - nr. Independence, 12 Dec.
2. RED-SHOULDERED HAWK, Big Pine, 20 Jan.
3. Six BALD EAGLES (3 adults) at Crowley Lake & Bridgeport Res. 28 Nov.
4. Two DUNLIN, Owens Lake 12 Dec.
5. SHORT-EARED OWL, Big Pine 21 Jan.
6. ACORN WOODPECKER, nr. Independence 12 Dec.
7. NORTHERN SHRIKE, nr. Big Pine 23 Jan.
8. NORTHERN SHRIKE, Coleville 28 Nov.
9. ORANGE-CROWNED WARBLER in Big Pine 17, 18, 30 Jan.
10. One GRAY-CROWNED ROSY FINCH IN White Mts. (no flocks) 2 Jan.
11. One GRAY-HEADED JUNCO in Big Pine and 1 at Oasis 16 Jan.
12. HARRIS SPARROW at Big Pine 17 Dec.
13. A WHITE-THROATED SPARROW at Big Pine all winter

+++++

EUREKA VALLEY

Rain in September and again in October 1976 brought a large expanse of standing water to the Playa in Eureka Valley.

Early in December, 1976, I collected crustaceans of the following genera:

APUS
BRANCHIONECTA
CERIODAPHNIA
MOINADAPHNIA
ESTHERIA

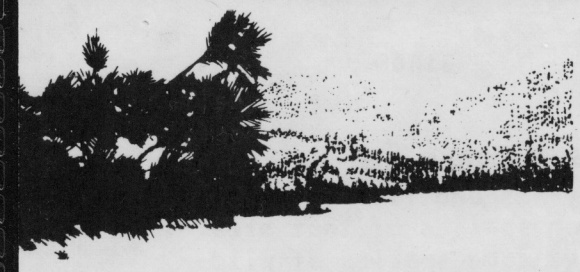
Evaporation of the water entrapped many of these in the mud and they then appeared as "fossils in the making" (eal)

+++++

A GREAT BLUE HERON was sighted by Larry Mangan over the water of the Playa in Nov., and also was sighted there by Enid A. Larson and Derham Giuliani 4 Dec. 1976. Egrets, ducks, sand pipers, avocets were also sighted in Nov. and Dec.

+++++

THE WHITE-TAILED KITE has not been seen this winter near Big Pine. It has been recorded here in each of the previous 2 winters. (eal)



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. zip: 93514
Volume 1 No. 2
Spring--1977
Edited by: Enid A. Larson, Box 265, Big Pine, Ca. 93513
3 issues per year

WAUCOBA: A Paiute word for "pine tree"; also, highest peak in Inyo Mts., 11,027 ft

WAUCOBA NEWS: Send 3 stamped, self-addressed envelopes, box 265, Big Pine, Ca., 93513

+++++++++

FOSSILS

MOLLUSK.--Small conical fossils, found in the Campito Formation (Early Cambrian) in the Westgard Pass area, appear to represent a large shell-less mollusk, possibly the oldest known cephalopod.
These fossils are slightly curved cones, mostly 1.5 - 5 mm long, generally showing a slight indentation in the base, like a golf tee. Although usually found isolated, in several cases hundreds of cones have been found together, arrayed in a band about 11 mm wide, an arrangement indicating that they are denticles of the radula of a mollusk.

Jean B. Firby and Dr. J. W. Durham have described the denticles (Journ. Paleontology v. 48, p. 1109-1119, Nov. 1974), naming the creature Campitius titanius. The specific name refers to the odd fact that the denticles are composed in part of the titanium-bearing mineral ilmenite. Comparing the denticles with those of other mollusks, the authors find them most like those of the modern cuttlefish, and so suggest that Campitius was also a cephalopod with body length of over a meter exclusive of tentacles, perhaps making its living by preying upon trilobites. --J.E.Mawby

A specimen of this very small fossil may be seen on display at the Bishop Museum, Laws, Ca. Do stop by!

+++++++

DEATH VALLEY

THE RACETRACK.--To the question "What moves the rocks at the Racetrack?", R.P.Sharp and D. L. Carey offer their conclusion after 9 years of study: Wind provides the power and the rocks move after the playa surface has been wetted by rain. (Sci. Am. vol. 236, no. 2, 1977)

INSECTS

MONARCH BUTTERFLIES.--Professor Urquhart, Univ. of Toronto, Canada, writes that he suspects the monarchs seen on Larrea tridentata in Saline Valley, reported in Waucoba News v. 1, no. 1, were using the creosote bushes as resting sites, NOT as overwintering sites. Much more study needs to be done. Overwintering sites east of the Sierra Nevada are yet unknown but Prof. Urquhart suspects that such will be found in conifer habitats at higher elevations. Volunteers are needed to help in this research. If you are interested, write D. Giuliani, in care of Waucoba News.

PAINTED LADY BUTTERFLIES.--Only small numbers of these insects flew northward this spring. Watch for possible mass migration in spring, 1978.

BEETLES.--Miloderes nelsoni, a green and gold weevil, endemic to Eureka Valley sand dunes, is often abundant in early spring in the sand at the bases of Astragalus. Later in this spring season, 6 May, only 2 specimens were located at such sites while numbers were observed at dusk on the foliage of the unique dune grass, Swallenia alexandrae. Their larvae remain undiscovered. --Derham Giuliani

+++++++

AWARD

MARY DEDECKER received an American Motors Conservation Award at the May meeting of the BLM Planning Committee. Mr. Ed Hastey, State Director of BLM, made the presentation. Mary was one of 8 women in 11 states to be so honored for her outstanding efforts on behalf of conservation.

FLASH !
from
John Thomas Howell

"NEEDLE-GRASS.--Stipa. Folks probably wonder why I've never "finished" my flora of the Sierra which I began some 20 years ago. Of course there is more than one excuse and there are "extenuating circumstances" but one of the causes for delay happened to me today 4 Apr. 1977. It concerned one of our most beautiful grasses, not uncommon along the east front of the Sierra, the desert needle-grass, Stipa speciosa. Usually it is easy to identify and should cause no trouble, but it did! The fruit of this species carries a bent bristle or awn 2.5 - 4 cm (1 -1.5 inches) long and below the bend the awn is adorned with a beautiful tuft of spreading white hairs producing a feather-like effect. "According to the books" these awn-like hairs should be 5-8 mm (ca. 3/16-5/16 inch) long, but by accident I discovered a Sierran specimen with hairs only half as long. You may ask what difference does it make if the hairs were only 1/8 instead of 1/4 inch long; but being alert to the importance of these awn-hairs in needle-grasses, I delayed the progress of the Sierran Flora a whole day measuring the awn-hairs of several dozen sierran collections. You may not be interested in what I found, but I'm going to tell you anyway! I found 4 short-haired specimens: 2 from Inyo Co. (Bishop Creek, 7000 ft; Whitney Portal, 8300 ft) and 2 from the Kern Plateau in Tulare Co. (between Chimney and Kennedy meadows, 7300 ft; Dome Lands Trail near Church Dome, 7600 ft). Although I've been studying needle-grasses for years, this is the first time I've been aware of this particular variation, and apparently grass specialists have overlooked it too. N O W our current floras will have to be corrected and future editions might even include a Sierra variety of the desert needle-grass that is not yet named. Or, with further field study, the grass may be found to be a hybrid derivitive between S. speciosa and S. Elmeri deserving specific recognition.

DO YOU SEE HOW HAIR CAN DELAY A FLORA?"

+++++++ --J.T.Howell

THE WHITE-TAILED ANTELOPE SQUIRREL.--(Ammospermophilus leucurus) In the Inyo Mts., Mazourka Cyn, this squirrel ranges upward from the floor of Owens Valley to 7600 ft. The highest elevation in the Sierra Nevada I have seen this species was on 7 Mar. 1977, at 6300-6400 ft. in Big Pine Cyn. --Enid A. Larson

BIRDS

OWLS.--It is amazing that one can bird an area for 5 years and fail to observe a fairly common species of that area. How secretive some species of wildlife can be!

Grinnell & Storer in Animal Life of the Yosemite 1924:300 report the nesting of the Long-eared Owl (Asio otus) near Mono Lake. I know of no citations for this species breeding in the Owens Valley. Mr. Earl Gann, Bishop, Calif., has recently shown this writer 3 active nests of this species in the Bishop area. Two were in magpie nests in willows and the other in a crow's nest in a locust tree. I have found an additional nest in a willow near Big Pine. At least two of these nests housed downy young on 30 April 1977. Information is needed on other breeding Owls from our area. Perhaps you can help. If so please call (714) 938-2757 or write me at Box 405, Big Pine, Ca., 93513.

--Tom Heindel

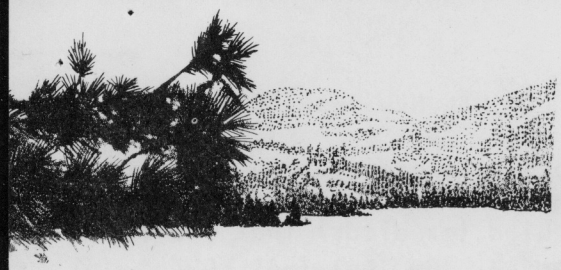
FLAMULATED OWL (Otus flammeolus).--On May 3, 1959, a specimen of this bird was brought to me at Argus by Joe Mont Eton. He had plucked it alive from a creosote bush at the base of Argus Mts, San Bernardino County, el. ca. 1700 ft; no conifers were in the area. After identification I released the bird at Argus, Ca. At the request of Dr. J. Marshall, I sent this record to Dr. Allen Phillips, Mexico City, but he tells me now that this manuscript has not yet been submitted for publication. To the best of my knowledge, this is the second known record of this owl from the Argus Mts. --Enid A. Larson

+++++++

PLANTS

PRICKLE-LEAF.--Hecastocleis shockleyi is an interesting native of Nevada which does not recognize political boundaries. Mark Kerr discovered it long ago along the Cerro Gordo road, where it occurs between 5600 - 5800 ft. (DeDecker # 1394, #2173). Another site in the Inyos is at 4400 ft. in the lower narrows of Marble Cyn (DeDecker #4042). Most sites are in the Last Chance Mts. between 4000 - 6500 ft. but it has been noted also in the Saline Range (D. Giuliani) and in the Grapevine Mts. (DeDecker). The best colony is along the south slope of Willow Wash at the southeast tip of Fish Lake Valley along the Eureka Valley Road (5400 ft.)

--Mary DeDecker



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca, 93514 Vol. 1 No. 3
Summer - 1977
Founded & Edited by: Enid A. Larson, Box 265, Big Pine, Ca. 93513 Quarterly

GLACIER

Some people may expect to see some of Yosemite's glaciers while traversing Tioga Pass. Too bad! Dana Glacier is not in view. The same for Conness and Lyell glaciers. B U T there is one small glacier on the north side of Dana Plateau that can be seen from one spot on Tioga Road. It is small, perched high in a deep cirque. It is on the north-facing slope above Lee Vining Cyn. There is a wide spot somewhere near BM 8615 along Hiway 120 where there is room to stop and view the upper part or bergschrund area and steep headwall. Rock-mantled ice and end moraine can be seen to descend to the perched front of the cirque. A thin waterfall originates at the terminus area and descends more than 1600 ft. to the bottom of Lee Vining Canyon. WARNING: Watch the road, have others in the car spot the glacier, then choose a proper wide spot along the road to view this small glacier. SAFETY FIRST !

Note: This drought year should be a good one to view this glacier and notice the bergschrund. It should be mostly free of snow and show dirty ice. Notice the waterfall. Send any reports to help keep a data file on this small glacier. We can call it "The Dana Plateau Glacier"

--Wm. H. Raub, Tech. Dept. Geol.
San Jose State Univ., San Jose
California, 95192

†††††††††††††

ACROSS THE STATE LINE. Margaret Williams of the Northern Nevada Native Plant Society informs us that her new site for Astragalus lentiginosus var. sesquimetralis (loco weed) is on the California side of the state line. She also rediscovered it at the type locality in Nevada, where it had not been reported since Shockley collected it in 1882. It was feared that the plant might be extinct, so this is an interesting bit of news for both states. more information will appear in a coming issue of BRITTONIA, a New York Botanical journal. --Mary DeDecker

BIRDS

BIRDS seen: LAST CHANCE SPRING, 21 Jun 77, Catbird, Black & White Warbler, Mockingbird, Tanager (probably a Summer Tanager) no wing bars seen, no red on head, body brilliant yellow; Ash-throated Flycatchers feeding nestlings; Costa Hummingbird, California Linnets. Habitat: Lower edge of Pinyon-Junipers.
--Enid A. Larson

CUCKOO, Yellow-billed:--This species has been rediscovered in Owens Vally by D. Gaines, July 1977. One bird was located near Big Pine by Gaines & Heindel, carrying a twig as if nest building. --T. Heindel

MONO LAKE
California Gull Colony

On 8 July 1977, a visit was made by canoe to the California Gull colonies on the islands of Mono Lake, Ca. The numbers of breeding gulls appeared the same as those censused in the summer of 1976 (50,000 adults producing 30,000 young). The colonies occurred in the same areas and were of the same magnitude as those observed in 1976. This year about 10 pairs of Caspian Terns are nesting there also. No evidence of predation on the colonies was observed, despite the fact that the channel separating Negit island from the mainland is only about 0.5 m deep and 15-20 m wide. The major source of disturbance to the colonies remains human visitation. This year the shallowness of the channel has encouraged several groups of people to visit the island. It must be stressed that each human visit to the island may cause damage to the colony above and beyond that which is immediately observed. At this date, the nestlings are within 1 month of fledging.

--D. Winkler, Sacramento;
C. Weigen, Los Altos, California

BIRDS OF THE YOSEMITE SIERRA has just been published by D. Gaines; price $5.75 plus sales tax: Order from Cal-Syl Press Oakland, Ca., 94602. This is a distributional survey.

EUREKA VALLEY

EUREKA DUNES in 1977 have been quiet enough for visitors with discerning ears to experience two natural pleasant sounds. The Dunes have boomed with music-like tones. Also, visitors have repeatedly experienced the phenomenon of hearing loud sounds in their heads.

The explanation for the latter is the ambient noise level at the Dune area is less than the noise level of the body processes. In other words, one can literally hear his own head work !

We walked the high ridges on Apr. 27, 1977, and then the sand was sufficiently dry to boom when set in motion. On a southerly exposure my foot caused spontaneous avalanching of a sheet of sand 1 - 3 m wide. The sound produced by the moving sand was loud and rumbling, similar to the deep tones of an organ. The low frequency sounds were usually followed by 2 distinct, higher frequency musical sounds in sequence. The sounds immediately terminated when the sand stopped moving. The rounding of the individual quartz sand grains was very good at the time, and the feldspar grains had some sphericity when examined by Dr. J. Evensen, Geologist. The smoothness or polish was not noted. Dryness (no rain for weeks and no temporary clouds), as well as roundness and polish of sand particles are known to be essential for sound production on a dune.

The booming of the Eureka Dune on that April day was a long-awaited and exciting event for me.-Mary Ann Henry

Ref.: Criswell, D.R. & J. F. Lindsay, 1975, Seismic and Acoustic Emissions of a Booming Dune. Journ. Geophysical Research 80:4963-4974.

Lindsay, J.F. & D.R. Criswell, et al. 1976, Sound Producing Dunes and Beach Sands. Geol. Soc. Am. Bull. 87:463-473.

++++++++++++++

INSECTS

BEETLES.--Three new species of scarabs in the genus Aegialia have recently been described from Nevada (J. Wash. Acad. Sci., vol. 67, no. 1, 1977), each endemic to a separate sand dune. These dunes are associated with a north-south set of interconnected pleistocene lake basins approximately followed by 300 miles of U.S. Highway 95. A. magnifica, the largest for the genus, and A. crescenta lack virtually all traces of wings while A. hardyi possesses half-length vestigials.

--D. Giuliani

ORNITHOLOGICAL NEWS WANTED

A manuscript is in preparation entitled "The Birds of Inyo and Mono Counties". If you have seen a bird (or birds) that you consider rare or unusual and feel that your record should be considered for inclusion, please submit details to Tom Heindel, Box 405, Big Pine, Ca. 93513, phone (714) 938-2757. There is much to be learned about our avifauna and your help is needed. Perhaps you have proof of nesting which is also needed for many species. Please submit details by Dec. 1977. Standard reporting for rare birds should include the following information, if possible:

1. Species: Name of bird
2. Location: Where did you see it? Specific
3. Date: Include time of day
4. Weather: Cloudy, clear, raining, or ???
5. Duration of Observation: How long did you see it?
6. Observers & Addresses: Who saw the bird?
7. Optical Equipment: Binocular, scope, power, type ?
8. Distance to bird & ease of observation
9. Habitat: Pinyon-Juniper, riparian, etc.
10. Bird's Description: Describe as best you are able, what you saw while in the field NOT FROM A BOOK.
11. Conclusions: How do you know it was what you said it was; which species could it be confused with and how did you eliminate these?
12. Your experience with this species. Have you seen it before?

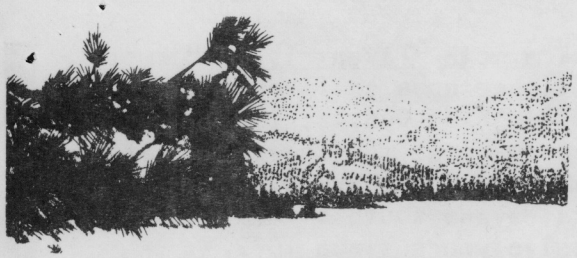
Don't let this paper work keep you from helping us to produce a better book. We feel it is necessary, to reduce the possibilities of errors. --T. Heindel

++++++++++++++++

The Panamint Chipmunk

Observations on this species of chipmunk (Eutamias panamintinus) 1970-77, record their use of the following food plants: Artemisia Dracunculus, A. tridentata; Atriplex canescens; Cercocarpus ledifolius; Chrysothamnus nauseosus, C. viscidiflorus; Juniperus utahensis; Leptodactylon pungens; Oenothera Hookerii; Pinus monophylla mature seeds and staminate strobila; Prunus fasciculatus; Purshia glandulosa developing seeds and pollen; Salsola Kali. In the White Mts. each autumn --Sept. - Nov. these chipmunks make intensive use of Large Rabbitbrush. We consider this plant one of their most important food supplies. Details of their harvesting processes will be given in a later issue.

--Enid A. Larson



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca.

Vol. 1 No. 4
Autumn - 1977
4 issues per year

Founded & Edited by: Enid A. Larson, Box 265, Big Pine, Ca. 93513

WAUCOBA: A Paiute word for "pine tree"; also, highest peak in Inyo Mts., 11,027 ft.

++++++++++

G R E E T I N G S

Waucoba News closes its first year of publication with this issue, No.4. The response by subscribers has been most gratifying. Circulation is ca. 700.

RENEWALS

Renewal for 1978 is now in order. Send 4 stamped (13¢) self-addressed envelopes to

WAUCOBA NEWS
Box 265
Big Pine, Ca. 93513

OR

A $5.00 Membership per year in The Bishop Historical Society
Bishop, Ca.,93514

Special THANKS to those of you who have so generously sent donations and to Mary W. Gorman who kindly contributed her time to help with the initial mailing. Mrs. Alice Boothe at the Museum has been of constant help and encouragement.

++++++++++

As a COOPERATIVE VENTURE Waucoba News is proving itself a gratifying and successful endeavour.

++++++++++++++++

RECENT PUBLICATIONS: "An Ecological Study of Mono Lake, California" ed. David W. Winkler for the Mono Basin Research Group, Inst. of Ecology Publ. No. 12, Univ. Calif., Davis, June, 1977, 95616. Order direct.

MONO LAKE

MONO LAKE AT THE CROSSROADS: See article by David Gaines, in AUDUBON IMPRINT, vol. 2, #2, Aug. 1977, Santa Monica Bay Audubon Society.

OWENS LAKE

Matson, John O.--"The distribution of rodents in Owens Lake Region, Inyo County, Ca." Contributions in Science from Nat. Hist. Museum, Los Angeles County, No. 276, June 1976. This paper gives the distribution of rodents, also the plant communities with which each species is associated.

++++++++++++++

BIRDS

Approximately 380 species of birds have been recorded from the eastern region of the Sierra Nevada encompassed by the counties of Inyo and Mono in California. This autumn a new bird has been added to this list; also, another bird has been recorded for the first time in Inyo County--it had been recorded previously but once for Mono County.

The bird new to the area is the SCARLET-HEADED (or Streak-backed) ORIOLE, Icterus pustulatus, an immature male. It was discovered by Jon Dunn at Furnace Creek Ranch in Death Valley National Monument, Sunday, 6 Nov. 1977. This bird is normally found in Central Sonora, Mexico, south to Costa Rica. There are less than 10 previous records in the United States: from southern Arizona and southern California. This sighting by Jon Dunn is the northernmost record for this species of Oriole.

The bird new to Inyo County is a RED-NECKED GREBE, Podiceps grisegena. This bird was also found in D.V.N.M. but at Stovepipe Wells on 6 Nov. 1977. The one previous record for this species is of a breeding plumaged bird at Topaz Lake, extreme northern Mono Co., 13 Mar. 1976.

BIRDS, continued from pg. 1, col. 2

RED-NECKED GREBE.--This species breeds primarily in Canada and Alaska and winters along the Pacific Coast. It is a rare migrant inland.

--Thomas Heindel

†††††††††††††

I N S E C T S

Dr. John Pinto, Entomologist, Riverside, Calif., writes that "Cordylospasta fulleri Horn, heretofore one of the rarest meloids in North America, has been taken regularly in early June, ca. 2 miles east of Big Pine, Ca. Among the many beetles that Derham Giuliani has collected recently, are some range extensions:

Eupompha schwartzi (Wellman) Saline Valley Northernmost known record for species.
Meloe niger Kirby Beverage Cyn, 9600 ft. in Inyo Mts., is typical Sierra Nevada phenotype
Epicauta lauta (Horn), Saline Valley Northernmost known record for species.
Lytta magister Horn, Collected in Eureka Valley. Northernmost record for Ca.

-- J. Pinto

†††††††††††††

M A M M A L S

California Ground Squirrel (Spermatophilus beecheyi) Big Pine Cyn. drainage: Observed at 9800 ft. by D. Giuliani, 1976 and at 10,200 ft. by E. A. Larson, 1975. At these locations, this squirrel is living above the Jeffrey Pine forest and at the fringes of a sagebrush basin, near a large stand of Mt. Mahogany (Cercocarpus ledifolius). Perhaps this species of squirrel has become established at this high elevation in the past 3 warm winters but it seems questionable from the knowledge of their life history that they could survive heavy winters at these elevations in the Sierra Nevada. Their first-year young are known as non-hibernators. Please send in any observations of this species at unusually high elevations.

Sierra Marmot (Marmota flaventris). Marmots are established as a small outlying colony in Big Pine Cyn, at 7600 ft. el. This seems to be at the lowest elevation for this species on the eastern side of the Sierra Nevada south of Alpine County. In successive years since 1972, these marmots have gone in and have not been seen above ground after July 22. In the following spring the adults emerge in March-April and the young have appeared in June, ususally in the first week. This time span allows the young not more than 7 weeks in their aboveground activities in which to forage. Is it any wonder that mortality during their underground period appears to be very high? At higher elevations, Grinnell & Storer (Animal Life of the Yosemite) report that marmots are active above ground until mid-November.

Panimint Chipmunk (Eutamias panamintinus) In the White Mts., Along Westgard Rd. I have found this chipmunk at 6200-9000 ft. el. at the upper and lower edges of the pinyons. Hall & Kelson (Mammals of North America) report it at 5800 ft. but a record seems to have been established in the Inyo Mts., where in Saline Valley, Derham Giuliani observed one foraging in Desert Almond shrub at 3200 ft. well below the pinyons in a deep gorge rocky canyon. I have also observed it along Waucoba Road, Devils Gate outcrop, below the pinyons. These observations establish that this chipmunk will, in foraging, follow rocky ridges and canyons to points below the fingering of Pinus monophylla.

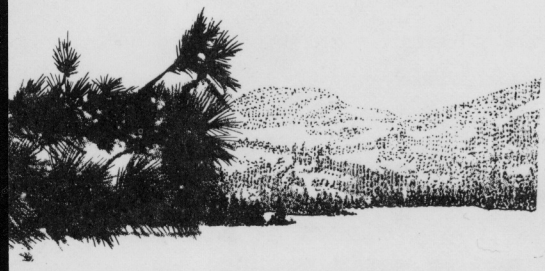
--Field notes, E.Larson

Rodents of OWENS LAKE REGION: Matson, John concludes his study with the following: "The 16 native species of rodents inhabiting the Owens Lake Region do not show the same ecotonal relationships as do the plants. Most species of rodents are of widespread occurrence in both northern and southern deserts. However, inspection of the range maps in Hall & Kelson (1959) show most of these species having their greatest distribution south of Owens Valley and may have invaded the valley from the south. Two species, Dipodomys microps and Peromyscus crinitus have more extensive ranges east and north of the valley and may have invaded from those directions."

--John O. Matson

His rodent list of species will follow in another issue of WAUCOBA NEWS.

(Ed.)



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Vol. 1 - SUPPLEMENT
Founder & Editor: Enid A. Larson, Box 265, Big Pine, Ca. 93513 July, 1977

Notes on Inyo County Grasses - 1
The Timothy Tribe (Agrostideae) in the Inyo Sierra
By John Thomas Howell

Agrostis. Bent Grass.
exarata Trin. Common grass of wet ground.
gigantea Roth. Redtop. Introduced meadow grass, often called "A. alba!" (C) Nat.
idahoensis Nash. More delicate than A. scabra; a beautiful grass.
lepida Hitchc. High dry meadows and open forests.
scabra Willd. Hair Grass; Tickle Grass. Places that have been wet; to timberline.
semiverticillata (Forsk.) C. Christ. Water Bent. In Inyo Co. but no Inyo-Sierran collection seen. Introduced.
Thurberiana Hitchc. A delicate grass of moist ground; southward to San Bernardino Mts.
variabilis Rydb. In places that are moist or have been wet.

Alopecurus. Foxtail Grass.
aequalis Sobol. In shallow water or on wet borders of streams and ponds.

Calamagrostis. Reed Grass.
Breweri Thurb. One of Sierra's most attractive grasses of high meadows and woods, near timberline or above. Sometimes confused with Oryzopsis Kingii.
canadensis (Michx.) Beauv. Bluejoint Grass. Up to timberline; moist or wet places.
inexpansa Gray. Rather rather rare; often in wet alkaline or mineralized soil.
purpurascens R. Br. Dry rocky slopes and ridges, up to 13,000 ft.

Muhlenbergia. Muhly.
andina (Nutt.) Hitchc. Foxtail Muhly. Rare; around seepages and mineral springs.
asperifolia (Nees & Mayen) Parodi. Scratch Grass. No Inyo-Sierran record of this widespread grass, BUT it has to be there! Moist saline or mineralized soil.
filiformis (Thurb.) Rydb. Pull-up Muhly. (C) moist or wet soil; above middle elev.
Richardsonis (Trin.) Rydb. Mat Muhly. Coarser than M. filiformis and generally in drier places.

Oryzopsis. Rice Grass.
hymenoides (R. & S.) Ricker. Indian Rice Grass. Sandy or rocky slopes up to timberline. When growing near a species of Stipa (needle grass), hybridization may occur. "Oryzopsis Bloomeri" is the hybrid bet. O. hymenoides & S. occidentalis.
Kingii (Bol.) Beal. An attractive grass of subalpine meadows; sometimes confused with Calamagrostis Breweri.

Phleum. Timothy.
alpinum L. Alpine Timothy. Moist or wet soil to above timberline.
pratense L. Common Timothy. Widespread introduced pasture grass; becomes nat.

Polypogon. Beard Grass.
Surely both P. monspeliensis (L.) Desf., the introduced rabbitfoot grass, and the

indigenous P. interruptus H.B.K. must occur on Inyo-Sierran slopes. Perhaps they are so common they are neglected (along with Agrostis semiverticillata).

Sporobolus. Drop-seed Grass.
airoides (Torr.) Torr. Alkali Sacaton. Known from Owens Valley and to be expected in mineralized springy places on lower Sierran slopes.
cryptandrus (Torr.) Gray. Sand Drop-seed. In dry sandy or rocky places at middle elevations or above; sometimes adventive along roads and in waste ground.

Stipa. Needle Grass.
californica Merr. & Davy. Mostly in dry woods.
columbiana Macoun. Open flats, brushy slopes, open forests.
comata Trin. & Rupt. Mostly on dry sandy or meadowy flats.
Elmeri Piper & Brodie. Dry open forests at middle elevations; like S. occidentalis but more than 1.3 ft. tall.
nevadensis B.L. Johnston. Occasional on dry slopes or flats.
occidentalis Thurb. Common in dry woods and meadows, ascending to alpine slopes; like S. Elmeri but less than 1.3 ft. tall.
Parishii Vasey. Arid slopes from the Inyo-Sierra eastward and southward; different enough from the cismontane S. coronata to be given specific recognition.
S. coronata Thurb. var. depauperata (Jones) Hitchc.
pinetorum Jones. At timberline or above on rocky slopes and ridges.
speciosa Trin. & Rupt. Dry rocky places below 9000 ft.

++++++++++++++

BOTANICAL NOTES . . . . . Mary DeDecker

ASHES IN INYO.--Fraxinus anomala, known as the single-leaved ash in much of the southwest, but little known in Inyo County. Recently, however, it is showing up in various desert ranges where it had escaped notice. LeRoy Johnson reported it from the southern Panamints; Edwin Rockwell, Derham Giuliani, and Mary DeDecker have found it at various sites on the east side of the Inyo Mountains; Giuliani, Dean Taylor, and DeDecker have discovered it on both the Eureka Valley and Death Valley drainages in the Last Chance Mountains; and it was noted in the Nelson Range by DeDecker. The elevations fall between 4500 and 8000 feet. It is usually a shrubby form, although small trees occur in the more sheltered sites. The leaves commonly have 3 - 5 small leaflets rather than a single leaf.

Editor's note: In a steep, limestone cyn. northeast of the Eureka Valley Sand Dune, Giuliani and Taylor located a grove of more than 65 (counted) small trees of this species. Giuliani reported that these vary in size to 20 ft., with young growth; saplings appear healthy.

CONFUSION IN THE PARSLEY FAMILY:--Although the umbels, Lomatium rigidum and Tauschia parishii are often confused, they may be identified by a simple observation. Both occur on the east side of the Sierra Nevada in Inyo County, mostly between 6000 and 8000 ft. Their habitats are dryish slopes, usually among rocks in loose sandy or gravelly soils. The acaulescent plants are similar in size and general appearance, both with the characteristic rather stiff, sharply pinnatifid, somewhat prickly leaves. Lacking the mature fruit--Lomatium with lateral wings and Tauschia wingless--the plants the plants may be easily distinguished by the difference in leaf surfaces. That of Lomatium rigidum is dull, with a faintly grayish cast, while that of Tauschia parishii is a dark, shining green.

++++++++++++++

BIRDS

Le Conte's Thrasher:--On 20 Jun 77 I observed 2 LeConte's Thrashers on the east side of Owens Valley in the vicinity of Manzanar (Reward). They were running along the ground in an area where the Atriplex shrubs were widely spaced. --Larry White, Big Pine, Ca.

WAUCOBA NEWS
Autumn, 1977

Vol. 1 No. 4
SUPPLEMENT #2
Grasses

Notes on Inyo County Grasses - 2
The Barley Tribe (Hordeeae) in the Inyo Sierra
by John Thomas Howell

1. The Cereals

This is the tribe of historically and economically important cereals, so let's take them first. Introduced from the Old World, they occur where grain spills, usually not persisting.

Hordeum vulgare L. Barley. Along roads and trails; spontaneous at Carrol Creek corrals in 1958.

Secale cereale L. Rye. At Carrol Creek corrals in 1958.

Triticum aestivum L. Wheat. No Inyo record seen but undoubtedly it occurs as a transient.

2. Floristic elements, native or introduced

Agropyron. Wheat Grass.

cristatum (L.) Gaertner. Crested Wheat Grass. Seeded along roads and trails and in open forests by the U.S. Forest Service to prevent erosion and improve range fodder. Introduced. A. desertorum of Calif. refs.

Pringlei (Scribner & Smith) Hitchc. Not reported in Inyo Co. but found within "a stone's throw" in Fresno Co. above 11,000 ft. on the side of Mono Mesa.

Saundersii - see XAgrositanion Saundersii.

subsecundum (Link) Hitchc. Subalpine (Big Pine Lakes Trail; Rock Creek Lakes Basin).

trachycaulum (Link) Malte. Rather common in subalpine meadows and groves, 9000 to 11,200 ft.

Elymus. Wild Rye.

cinereus Scribner & Merrill. Great Basin Wild Rye. In "greasewood scrub" in Owens Valley; probably also in Sierran foothills.

glaucus Buckley. Blue Wild Rye. Common and widespread in meadows and open forests, Inyo records up to 10,700 ft.

triticoides Buckley. Creeping Wild Rye. Widespread; a pubescent form, var. pubescens Hitchc., in Owens Valley.

Hordeum. Barley.

brachyantherum Nevski. Meadow Barley. This common Sierran grass has not been reported from the Inyo-Sierra but, since it has been found in 14 other counties from Plumas and Lassen to Mono and Kern, it must be in Inyo too! Hordeum geniculatum Allioni, the introduced Mediterranean barley, is also not reported from the Inyo-Sierra.

glaucum Steudel. Confused Barley. Weedy in Owens Valley and on Whitney Portal Road at 7000 ft. It resembles the more common coarser "farmer's foxtail," H. leporinum Link, but that has not been reported for the Inyo- Sierra. Both are annuals and introduced.

jubatum L. Foxtail Barley. This has been collected in low ground near Bishop; Peirson reported it from the Rock Creek Lake Basin at 10,700 ft.

Lolium. Rye Grass.

perenne L. Perennial Rye Grass. Has been reported from the Rock Creek Lake Basin; in the Sierra it is sometimes seeded to improve meadow pasture. The closely related Italian rye grass, L. multiflorum Lamarck, has not been reported from Inyo Co. but is to be expected. Both are native in the Old World.

Sitanion. Squirrel-tail.

Hansenii - see XElysitanion Hansenii.

Hystrix var. californicum (J.G. Smith) F.D. Wilson. California Squirrel-tail. The commonest Sierran squirrel-tail, ascending from foothills to alpine crests and flats, 12-13,000 ft.

Hystrix (Nutt.) J.G. Smith var. Hystrix. From pinyon belt to alpine fell-fields (at 12,400 ft. on Inconsolable Range).

longifolium J.G. Smith. Some plants from Mono Mesa at 12,000 ft. have all florets fertile at each node of the rachis, a characteristic of S. longifolium. Other collections vary towards S. Hystrix with some florets reduced to glume-like awns. Sierran alpine squirrel-tails are in need of study.

3. Hybrid Barleys

Members of the Barley Tribe are notoriously promiscuous when they get together, as so often they do in Sierran woods, brush, and meadows. Although they are so commonly interfertile, most of their offspring are sterile. These "mules" can usually be detected because in appearance they are intermediate between their quite different parents. The following intergeneric hybrid barleys have been found in the Inyo-Sierra or may be expected:

XAgrositanion Saundersii (Vasey) Bowden. Agropyron trachycaulum X Sitanion sp. Agropyron Saundersii of Calif. floras. Rock Creek Lake Basin; Big Pine Lakes, 10,800 ft.; Little Cottonwood Creek, 9800 ft.

XElysitanion aristatum (Merrill) Bowden. Elymus triticoides X Sitanion Hystrix; Elymus aristatus of Calif. floras. Not reported south of Mono Co., but to be expected.

XElysitanion Hansenii (Scribner) Bowden. Elymus glaucus X Sitanion sp.; Sitanion Hansenii of Calif. floras. In Pinus flexilis belt, Big Pine Creek Trail, 9000-9500 ft.

▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪

++++++++++

Penstemon papillatus, the Big Pine penstemon, is an endemic restricted to the east side of the Sierra Nevada more or less opposite Big Pine. It is known by its spreading mat of yellowish-green elliptic to round-spatulate leaves and erect stem of purplish-blue flowers. The corollas are tubular, 1 to 1 1/4 inches long, rose-purple below, deepening to bright blue in the flaring lips. The lower lip exceeds the upper. Its presently known range is between 7000 and 9500 feet, from Taboose Cyn to the Bishop Creek drainage. The sites are infrequent, however, and limited. If you should have the privilege of seeing this handsome species, you must regard it as a special treet, to be admired but not picked.

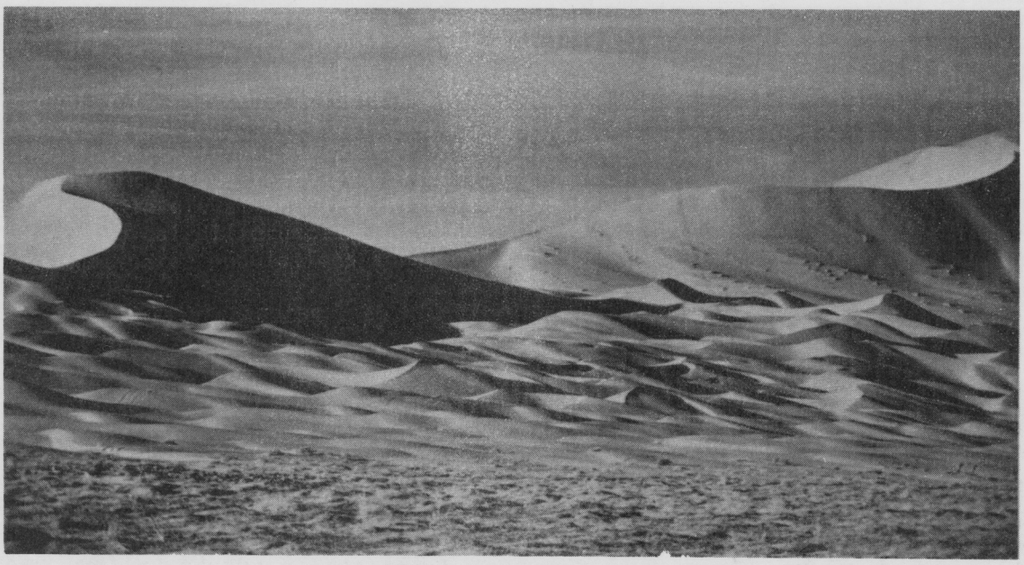
--Mary DeDecker

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Volume II, No. 1
Winter -- 1978
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 4 issues per year

WAUCOBA: A Paiute word for "pine tree" - also, highest peak in Inyo Mts., 11,027 ft.
WAUCOBA NEWS Subscription: Send 4 stamped, self-addressed envelopes, Box 265, Big Pine, Ca.

††††††††††††††††††



SAND DUNES - EUREKA VALLEY
photo by eal

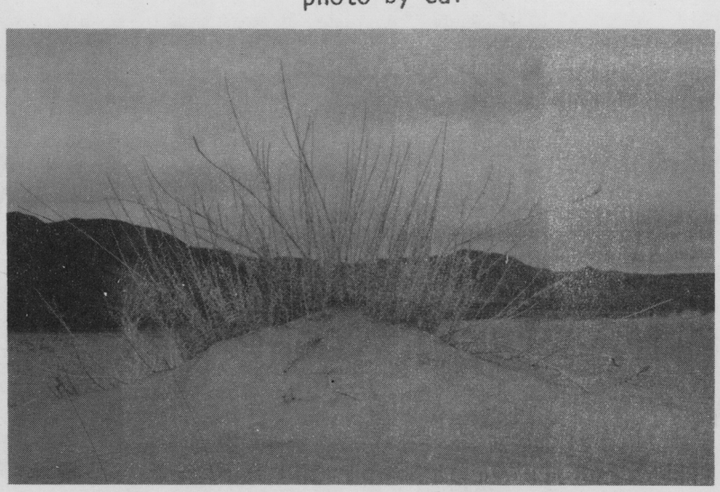
††††††††††

Dune systems are focal points wherever they occur. Not only are they interesting ecological islands but, regardless of size and form, they have great aesthetic appeal. Those of Eureka and Saline valleys differ considerably, even though they are not far apart in air miles. It is worthwhile to visit both, to enjoy their beauty and to make thoughtful comparisons of their various features.

The principal Eureka Dunes occurs at the low southeast corner of the valley at an elevation of about 3000 feet. The Saline Valley dunes are just north of the saline sink at 1200 ft. el. The Eureka Dunes form a somewhat stabilized ridge almost 700 ft. high, west of and paralleling a precipitouswall of the Last Chance Mts. The Saline Valley dunes are much lower and less stable. They occupy a roundish area below the steep east face of the Inyo Mts. The former receives a generous amount of any precipitation caught by the Last Chance Mts., and, due to the massive form of the high ridge, retains it through the dry months. The moisture is fed gradually to the dune borders. This supports numerous perennials, as well as annuals, and extends the blooming season well beyond that of the surrounding desert. The Saline Valley dunes, close in the rain shadow of the Inyo Mts., receive little precipitation, and their low, widely spread form allows ready evaporization.

Differences in elevation, precipitation, and capability for water storage have resulted in decided ecological differences. The rich flora and fauna of the Eureka Dunes is in great contrast to the sparse populations found on the dunes in Saline Valley.

Swallenia alexandrae
photo by eal



Most famous of the Eureka Dunes plants are the 2 endemics: Swallenia alexandrae the Eureka dune-grass and Oenothera avita ssp, eurekensis, the Eureka primrose. The dune-grass forms dark accents almost to the summit of the highest ridge. It grows from rhizomes or spreads by seeds. Leaf-blades are short and rigid. This coarse grass is valuable as a sand stabilizer. The Eureka primrose, also a perennial, is common throughout the sandy perimeter of the dunes and on the lowest slopes. Its lovely white flowers are typical of the white evening primroses, but this plant has developed the ability to resume growth from old shoots which may become buried by sand. Thus a "mother" plant may be surrounded by a circle of offspring. ---Mary DeDecker

PLANT LISTS

Lists of plants for the Eureka and Saline sand dunes will appear in the Spring issue of WAUCOBA NEWS. ed.

†††††††††††

"The Eureka Dune-grass usually occupies widely spaced hummocks on the Dunes. New hummocks can appear, others disappear, and some are stable. Between April 1974 and Nov. 1976 the losses of established Dune-grass hummocks were greater than the gain in new hummocks. Of the original 37 hummocks I am studying, of all kinds present in April 1974, 26 remained in Nov. 1976, a 30% loss. Only 8 new hummocks appeared. This grass flowers in April; seeds germinate in the autumn. Between Oct. 1975 - March 1976 there was 89.2% mortality of new seedlings."

--Mary Ann Henry, Ridgecrest, Ca.

†††††††††††

BIRDS OF EUREKA & SALINE VALLEYS

The list of resident species is not large. A resident may be defined as one that is there all year, though these may not be the same individuals. Just about 2 dozen birds fall into this category. They are:

Pied-billed Grebe
Mallard
Ruddy Duck
Red-tailed Hawk
Golden Eagle
Prairie Falcon
American Kestrel
Chukar
Virginia Rail
Sora Rail
American Coot
Killdeer
Roadrunner
Great Horned Owl
Say's Phoebe
Horned Lark
Northern Raven
Marsh Wren
Canyon Wren
Rock Wren
LeConte's Thrasher
Loggerhead Shrike
House Sparrow
House Finch
Song Sparrow

An additional dozen species come to spend the summer and raise their young. Many of the birds which breed in the nearby higher mountains descend to these valleys in winter.

Over 120 additional species have been recorded as migrants. This list will undoubtedly climb as more observers spend time in these beautiful isolated areas. Migration is lengthy, lasting in spring from Feb. - June, and in autumn from July into late November.

A number of vagrants have been observed in this area also. A vagrant is a bird that does not belong here. It is not in a normal migration route, not a summer, winter, or permanent resident. In this category we can include such birds as the Cattle Egret, Eastern Kingbird, Black-and-White Warbler, Worm-eating Warbler, Rusty Blackbird, and others.

The big attraction in these areas for most species is the presence of water with its supporting food supply. Thus in the middle of these very xeric areas, during migration, we find geese, ducks, gulls, terns, egrets, avocets, herons and other shore birds as well as many other species we would not expect to find on the deserts of Inyo County.

Saline Valley offers the birds a few isolated permanent water sources--a marsh, an overflow of an artesian well, a man-made reservoir, and in stream beds in canyons at irregular intervals water reaches the surface before being lost on alluvial fans.

--Tom & Jo Heindel, Big Pine.

INSECTS

MONARCH BUTTERFLIES in Saline Valley: Marking of individual butterflies in Saline Valley by canyon location is underway this winter. Ambient temperatures at night during December and January have remained above freezing. On warm days these lepidoptera actively fly so that of the total marked individuals few are recovered. These butterflies choose Creosote Bush (Larrea), below the mouths of canyons, and cling especially to branches that overhang a free water source. More on this complex problem in the future as evidence for their daily movements, requirements, and migration accumulates. This study is being carried out in cooperation with Dr. Fred Urquhart, Toronto, Canada.

--Derham Giuliani

†††††††††

Research Studies in Progress

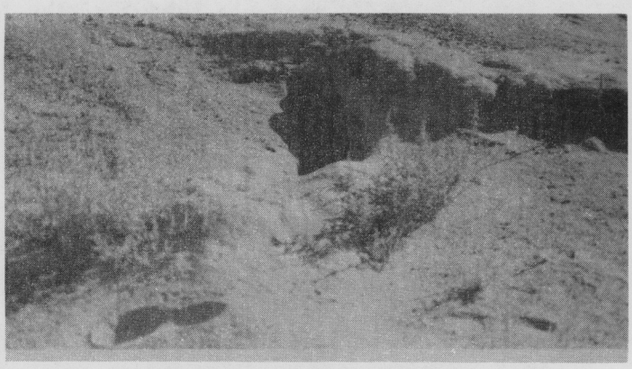
In both Eureka and Saline valleys, ecological and distributional studies of plants, insects (especially Coleoptera) and birds are underway. BLM has 3 well-trained naturalists preparing censuses of populations in Saline Valley: Robert Stewart, Ornithologist from Point Reyes Bird Observatory will be making bird identification January - May 1978; Peter Woodman will be working in the New York Butte area, Inyo Mts.; Scott Horton is involved with further wildlife study.

Insect Research is proceeding in its initial phase of making collections along transects in Eureka Valley, and is under the direction of Drs. Fred Andrews and Alan Hardy, Dept. Food and Agri., Sacramento, Ca.

In a comparison of Eureka and Saline valleys, Saline possesses a greater number of insect species because of its diversity of habitats. Yet when their dunes are compared Eureka Dunes supports at least 5 times the number of genera of sand-restricted Coleoptera.

When the tedious and lengthy process of identification is completed by specialists, and habitats of these insects are clearly delimited, lists of species will be reported in WAUCOBA NEWS as the knowledge becomes available.

--Derham Giuliani



DESERT KIT FOX

The Desert Kit Fox (Vulpes macrotis) in California is a protected species and cannot be taken except by scientific permit. Capt. Ken Brown, D.F.&G., warden, tells me the fine for taking or possessing any animal, its pelt, or remains, is subject to FINE of $500.- and/or 6 months in jail. Nowhere in Inyo County is this mammal abundant. The above photo is of a den entrance of this Fox. (Photo by eal.)

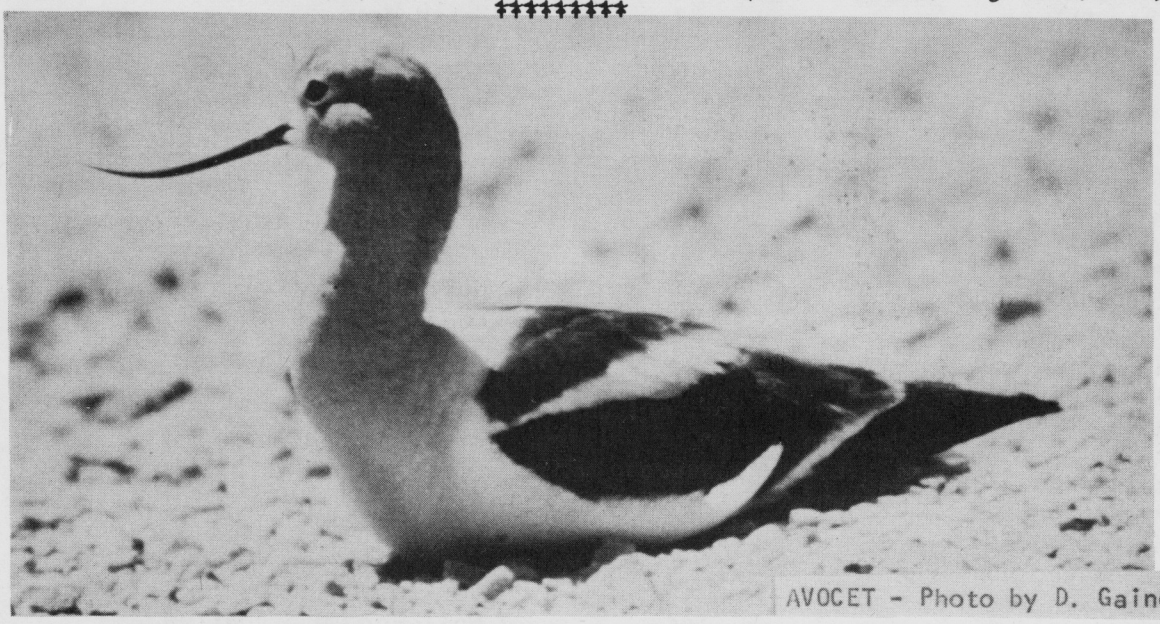
--Enid A. Larson

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca.
Founded &
Edited by: Enid A. Larson, Box 265, Big Pine, Ca. 93513
zip: 93514
Volume II, No. 2
Spring -- 1978
4 issues per year

WAUCOBA: A Paiute word for "pine tree"; also, highest peak in Inyo Mts., 11,027 ft

WAUCOBA NEWS: Send 4 stamped, self-addressed envelopes, Box 265, Big Pine, Ca., 93513



AVOCET - Photo by D. Gaines

MONO LAKE
An Endangered Ecosystem

East of Yosemite National Park lies one of the most awesomely beautiful and scientifically interesting regions on earth. This land of granite escarpments, glacier-scoured canyons, volcanoes and lava flows is dominated by the blue expanse of MONO LAKE.

For at least 700,000 years the waters of Mono Lake have lapped at the feet of the Sierra Nevada's steep eastern escarpment. During the Pleistocene glaciations, the lake waxed to several times its present size and depth. Perhaps as recently as 13,000 years ago tongues of ice reached its shores and icebergs drifted on its surface. At times its waters overflowed into Owens and ultimately Death valleys. Conversely, during interglacial periods, Mono Lake shrunk into its tectonically formed drainage basin and became a lake without an outlet to the sea. A series of wave-cut terraces on the slopes above the lake have left us a record of its expansions and contractions. Despite these fluctuations, Mono Lake has never dropped much below its present volume. It survived perhaps a million years of glacial and interglacial climatic cycles--one of the most ancient inland bodies of water in North Am.

MONO's shores are now marked by a conspicuous band of white, barren alkali-encrusted rocks and sand--a "bathtub ring" left by the shrinking shoreline of the lake. This is the direct consequence of "engineering skills" and man's extravagant use of its waters for his exclusive use. Alkali dust rises from these shores and often obliterates the reflections from its mirror-like surface.

Alkali dust borne eastward may prove a very real threat to the Bristlecone Pine Forest on the White Mountains; borne southward, this dust is already reaching Mammoth and is posing a health problem.

Of equal concern is the fate of many living organisms which depend on Mono Lake for sustenance. The uninformed are ignorant of the enormous fecundity of Mono Lake's phyto-plankton and the invertebrate organisms that feed the immense swarms of California Gulls that nest on the islands of Mono Lake. In addition to gulls, hundreds of thousands of grebes and phalaropes visit Mono Lake on their migratory journeys. In 1865, J. Ross Browne wrote "myriads upon myriads of birds hover over the rocks from morning till night, deafening the earwith their wild screams, and the water is literally covered with them for a circle of many miles".

In imminent jeopardy is the Negit Island California Gull rookery, the largest in the state, and considered the 2nd largest in the world. This year a land bridge will have emerged between the shore and Negit Island allowing the predators to move out to the island and prey upon the nesting gulls. Changes in the chemistry of Mono Lake's water is equally serious because these birds are now at the limit of their known salt tolerance.

Already evaporation has concentrated its waters to twice the salinity and ten times the alkalinity of seawater. If diversions of fresh water from the Sierra drainage continue the carbonates and other solutes will increase to about four times their present densities. How will the lake's inhabitants survive? Will birds be able to bear this increase in salt stress? --David Gaines, Ornithologist, Mono Lake Study Group.

Can MAN afford the loss of these scavengers? The aesthetic losses? The increasing health hazard? The interruption of a continuous link to prehistoric time? The biological changes that will predictably result?

Report of Birds at Mono Lake
First Annual Christmas Census - Dec. 31, 1977
Compiled by D. Gaines & D. Winkler

Eared Grebe	43	Raven	10
Great Blue Heron	2	Pinon Jay	250
Mallard	1	Nutcracker	76
Pintail	5	Mountain Chickadee	88
Common Goldeneye	1	Plain Titmouse	2
Ruddy Duck	5	Bushtit	154
Sharp-shinned Hawk	1	White-breasted Nuthatch	14
Cooper's Hawk	4	Red-breasted Nuthatch	8
Red-tailed Hawk	11	Pygmy Nuthatch	9
Rough-legged Hawk	16	Creeper	8
Bald Eagle: 1 ad., & 1 imm.	2	Dipper	2
Marsh Hawk	1	Bewick's Wren	4
Prairie Falcon	1	Marsh Wren	4
Merlin	2	Mockingbird	1
Kestrel	2	Robin	370
California Quail	1	Varied Thrush	4
Mountain Quail	1	Hermit Thrush	1
Chukar	4	Mountain Bluebird	25
Coot	10	Solitaire	34
Killdeer	14	Ruby-crowned Kinglet	1
Snipe	3	Water Pipit	42
Spotted Sandpiper	4	Northern Shrike	6
Least Sandpiper	34	Loggerhead Shrike	4
Larus spp.	1	Starling	62
Great Horned Owl	5	House Sparrow	60
* Long-eared Owl	3	Meadowlark	16
Red-shafted Flicker	29	Brewer's Blackbird	40
Red-breasted Sapsucker	1	Pine Grosbeak	3
Hairy Woodpecker	13	Red Crossbill	17
Downy Woodpecker	9	Rufous-sided Towhee	9
White-headed Woodpecker	2	Slate-colored Junco	5
Horned Lark	19	Dark-eyed Junco	168
Steller's Jay	106	White-crowned Sparrow	1
Black-billed Magpie	60	Fox Sparrow	1
* Belted Kingfisher	1	Song Sparrow	25

In this first annual Christmas Count, Audubon Society, there were 25 participants in 11 parties. Weather was calm, cold, overcast to partly cloudy, moderate snow cover. In addition to the above list there were 3 unidentified ducks, 1 Accipiter ssp., 1 Buteo ssp., 4 unidentified Goldfinches. TOTAL IDENTIFIED SPECIES 69

++++++++++++++++

SUN DOGS AND CIRCLES

The Deep Springs area was treated to a remarkable display of atmospheric optical phenomena, around 12-12:30 pm on 27 January, as a thin alto-stratus cloud passed over the area from the SW: 22^{o} Halo, a bright colored halo encircling the sun, with a radius of about 22^{o}. 46^{o} Halo; only short segments of this fainter halo were seen, SE and SW of the sun. Parhelic Circle, a white circle, passing through the sun and encircling the sky, parallel to the horizon. Tangential Arc, a fainter colored arc touching the top of the 22^{o} halo. Sun Dogs (Parhelia), bright colored spots at the intersection of the parhelic circle and the 22^{o} halo. The rare 46^{o} parhelia were not seen. Paranthelia, concentrations of light on the parhelic circle, 120^{o} from the sun. I did not see the Anthelion, a similar spot at 180^{o}, but a Deep Springs student did report it.

These light phenomena are all produced by reflection and/or refraction of sunlight by hexagonal ice crystals. Some elements of the display, such as the sun dogs, are seen fairly frequently. Others are much less common, "only about thirty appearances of [anthelia] having been recorded in the past 250 years. The paranthelia are still rarer." (R.W. Wood, Physical Optics, 3rd ed., 1934)

--J.E. Mawby
Deep Springs College

Dr. Mawby tells me that the display lasted for about half an hour, reaching its peak around 12:30 p.m., after which it faded rather quickly as thicker clouds moved in.

"The paranthelion to the northeast was bright and clear for at least 15 minutes; that to the northwest was as bright for only a few moments." --Editor

++++++++++++++++

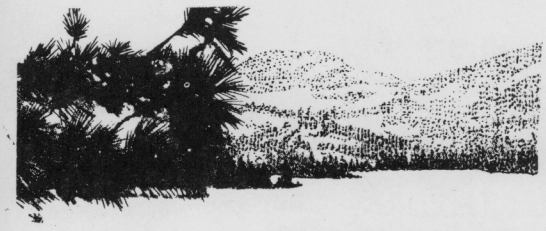
Research in Progress

BEETLES: February - March are busy months for D. Giuliani and his sand-dunes' studies. We have no report yet from him on the MONO LAKE SAND DUNES; snow from recent storms covers the Mono Basin.

On Feb. 19, 1978, a trip into Deep Springs Valley sand dunes yielded few dune click beetles although in previous years they were abundant

BUTTERFLIES: Of hundreds of Monarch Butterflies marked in Saline Valley this winter, as of March 1, only 2 have been recovered in other locations in the valley. Please report any sightings of these butterflies with WHITE PAINT marks on under sides of secondary wings.

Painted Lady Butterflies may migrate this spring. Please report any such to D. Giuliani, WAUCOBA NEWS, Box 265, Big Pine, Ca. 93513



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum

Volume II
Summer 1978
4 issues per year

WAUCOBA: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,027 ft.

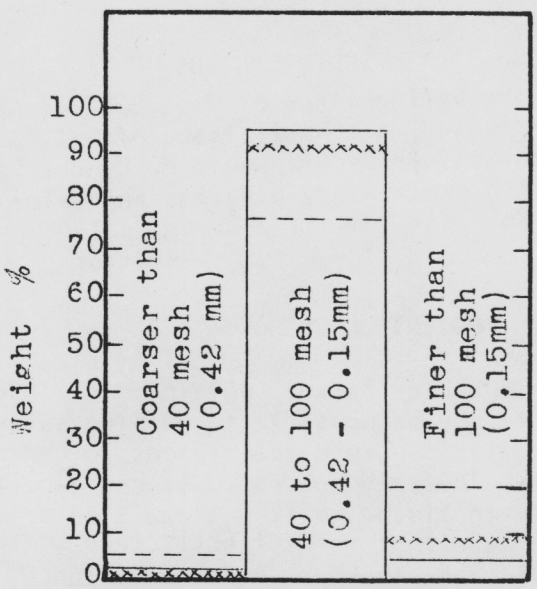
EUREKA VALLEY SAND DUNES - A Report by Ronald A. Henry, China Lake, Ca.93555

In connection with a continuing vegetative study of the plants on the main Eureka Valley dune by Mary Ann H. Henry, some facts about the composition and properties of the sand have been collected.

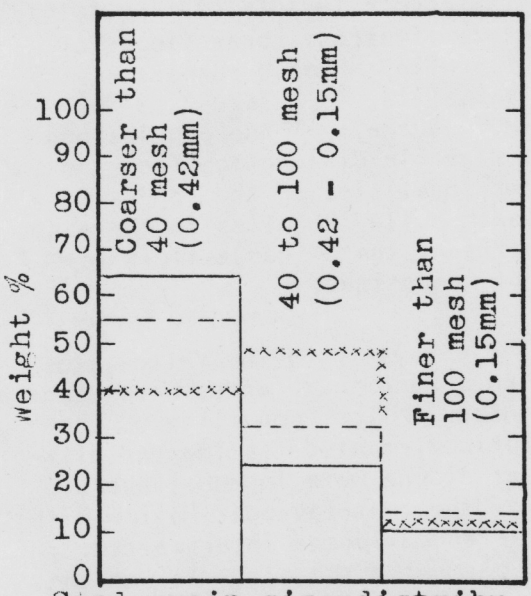
The pH of water-saturated samples from eight different locations on the north side of the dune, ranging from playa to summit, varied from 8.4 to 9.4 (alkaline). The most alkaline samples generally were at the higher elevations. The content of magnetic material (two locations) was in the range 3.0 to 3.7%. The amount of material soluble in dilute hydrochloric acid (i.e., limestone, dolomite, soda ash, etc.) varied from 3.3 to 4.7%. Grain size distribution was measured on samples from the same three sites: (1) 64.2% coarser than 40 mesh (U.S. Standard Sieve size: 0.42 mm), 25.2% between 40 and 100 mesh (0.42 to 0.15 mm), and 10.5% finer than 100 mesh (0.15 mm); (2) 54.8, 31.8 and 13.4%,respectively; and (3) 39.7, 48.3 and 12.0%, respectively. (A more detailed analysis on each sample is available.)

By way of comparison the pH on samples of sand from three different areas on the west side of Eureka Valley (but not including the Marble Canyon dune) ranged from 9.0 to 9.2, the content of acid soluble components from 2.8 to 5.3%, and the grain size distribution as follows: (1) 0.8% coarser than 40 mesh, 94.8% between 40 and 100 mesh (in fact 72.8% was between 50 and 80 mesh), and 4.4% finer than 100 mesh; (2) 3.6, 76.7 and 19.6%, respectively; and (3) 0.0, 91.4 (78.2% was between 50 and 80 mesh), and 8.6%, respectively. Sand on these west side sites has about one-half the average particle size and is more uniform in size than the sand in the large dune. Is the source of sand for the latter different than that for the dunes across the valley?

Moisture content, which of course is a highly variable quantity, ranged from 0.1 to 2% on the 8" deep surface cores which were gathered for the other analyses.



Sand grain size distribution; 3 different sites westside of Eureka Valley



Sand grain size distribution; 3 different sites north side of large dune

ORNITHOLOGICAL RESEARCH IN THE EASTERN SIERRA

Remarkably little research has been conducted on the birds of the eastern Sierra. A list of some of the more significant studies of the Inyo/Mono area would include: The Death Valley Expedition of 1890, by A. K. Fisher., Joseph Grinnell's work in Death Valley during the 1920's, and the work of Dixon in the June Lake area during the 1930's.

Thus it is refreshing to have at least 3 major projects underway at this time. Dr. Steven Rothstein of UCSB and a graduate student, Ted Stevens are spending the summer in the area doing research on Brown-headed Cowbirds. They have already discovered that nest parasitism is much higher in the northern part of the Owens Valley than in the southern. Brewer's Blackbird appears to be one of the most important host species.

Dave Winkler of the Mono Basin Research Group returned to Mono Lake in April and will be working there until August. He will be banding and color marking phalaropes.

Dr. Lee Jones of UCLA and a team of excellent field people, Elizabeth Cooper, Terry Clark, and Louis Bevier, have been conducting breeding bird surveys for the BLM. They have been making surveys from near Mono Lake south to near Owens Lake.

Both Steve Rothstein and Lee Jones' team have discovered the Summer Tanager in the Owens Valley. I know of no previous record for that species in this area. Numerous records exist for the desert oases south and east of Owens Valley. These, interestingly enough have been found to belong to the eastern race of the Summer Tanager, Piranga rubra rubra not P. rubra cooperi which breeds in the Colorado river area and at a few more southerly oases. --T. Heindel

Larry White, Big Pine, together with Rich Hubbell, is working on a bird survey in the Deadman area, south of Mono Lake; this is a U.S. Forestry undertaking. --Editor's Note

P L A N T S

Two populations of the Naked Sunray (Enceliopsis nudicaulis) have been located on the lower slopes of the Inyo Mts. in the Owens Valley: 1) alkaline, gravelly clay slope near Montezuma Mine in the vicinity of Tinemaha Reservoir (# 7015, 27 April 1978) at 5100 feet 2) limestone scree slopes at 4700 feet, 1.5 miles NE of N corners of Sections 5 & 6, T11S, R35E (#7032, 9 May 1978, with M.T. Burke). These populations represent a sizeable disjunction from the nearest known localities in the ranges bordering Death Valley 40 miles to the east, and they represent the NW range limit for this genus of Compositae.

--Dean Wm. Taylor

WILDFLOWER displays in Saline Valley, toward both north and south ends, were reported as spectacular. Miles upon miles of the mallows--Apricot, created flaming red hillsides, lower slopes were in unbelieveable profusion of the rose-lavendar Mallow with the orange -red mariposas intersperced. Fragrances permeated the air. It was the experience of a lifetime to have seen this display. Eureka Valley produced few flowers this year. Such is the way of the desert !

--Editor

NOTES ON A LIMBER PINE

Unlike the Jeffry and Pinyon pines which flank Grouse Mountain west of Bishop, the small sapling perched on the very summit is a limber pine (Pinus flexilis). The tree stands about 4 feet tall as it emerges from its rocky holdfast, bearing green and healthy foliage.

One tree does not a forest make, nor one individual a population. However, this spirited arbor does represent a rather remarkable example of long distance seed dispersal and establishment in the pines. Because the seeds of limber pine are large and the seed wings usually remain within the cone, it seems unlikely that the seed found its way to the summit by means of wind. The nearest Sierran population is at least 2 to 3 aerial miles west of Grouse Mountain. Large birds capable of carryingthe seed are more probable agents. In any case, it is equally notable that the requirements for successful germination and establishment were met in such an unyielding spot as this. --Bruce Pavlik

I N S E C T S

RAIN BEETLE.--Pleocoma rubiginosa transsierrae Hovore is a new subspecies recently described from Inyo and southern Mono counties. Ref: A Review of the Taxonomic and Distributional Relationships of Pleocoma hoppingi Fall and Pleocoma rubiginosa Hovore (Coleoptera: Scarabaeidae) in "The Coleopterist's Bull. 31 (4), 1977, p. 319-327". It ranges north from Wonoga Peak to Witcher Creek, 5700 - 10,000 ft. elevation. While adult males have sometimes been numerous in the vicinity of melting snowpacks, females are thus far known only from a few fragments salvaged from coyote scats.

PAINTED LADY BUTTERFLY.--A migration to the W and N by Vanessa cardui Linn. was noted this spring through Inyo & Mono counties. Low numbers and unstable weather prevented a planned close analysis of flight patterns. Peak numbers of up to 7/min. across a 50 ft. front were seen 19 April at Big Pine (compared to over 50/min. during the mass migration of 1973). On 21 April, flight directions recorded at Saline Valley showed a gradual clockwise rotation of the preferred direction of flight: about 30 degrees in 3 hrs. Larry White reported butterflies flying to the NW over the snow-covered Sierra crest, north of Minaret Summit (9500 ft) during the last week of April. Any other observations of this insect by readers would be welcomed. --Derham Giuliani

MORE ON ATMOSPHERIC HALOS

After the Spring issue of Waucoba News had been distributed, the April issue of Sci. Am. carried an article by Dr. David K. Lynch, Cal. Tech. , with explanatory diagrams and color photos. Ref: Sci. Am. v. 238, #4, p.144

--Editor

??? POTENTIAL ENERGY ???

According to Lester Packer, physiologist, U.C. Berkeley, it may be possible to utilize salt-living bacteria's purple-red pigment to generate electricity. This pigment not only can generate electricity in living cells but can also produce energy from sunlight more directly than do the pigments in green leaves. Ref: BIOSCIENCE, June, 1978, Vol. 28, No. 6.

This should be good news for the Great Basin with its profusion of salt lakes. Never underestimate the potential of the microbes !

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum

VOLUME II
Autumn 1978
4 issues per year

WAUCOBA: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,027 ft.

LENTICULAR CLOUDS OVER OWENS VALLEY

Photo by eal
Zeiss Contiflex

MOUNTAIN LEE WAVES

(The following is presented in Waucoba News with permission from NEVADA WEATHER WATCH, Vol. III, No. 2, from an article by Harold Klieforth, Reno, Nev)

When a cold front approaches California from the northwest and the westerly air flow increases in speed over the Sierra crest, spectacular stationary clouds are usually seen over the leeward valleys. These are manifestations of a mountain lee wave as it is known. If the ridges and troughs of the horizontal air flow pattern can be likened to the bends or meanders of a stream, the lee wave phenomena are analogous to the falls and ripples. Air flowing over the Sierra plunges downward, then upward and downward again in a series of crests and troughs. The wavelength depends on the air flow characteristics, mainly the variation of air temperatures with height (lapse rate) and the increase of wind speed with height (wind shear). The amplitude is greatest in strong waves and when the vertical flow pattern is in resonance with the terrain as, for example, when the second wave crest lies over the next mountain range downwind such as the Inyo Mountains, east of Owens Valley.

Up- and downdrafts in a strong lee wave are often 2,000 ft per minute and sometimes exceed 4,000 ft per minute. Where the air descends it warms and the relative humidity decreases. The warm dry winds which may reach 60 mph (30m/sec) at the surface are known as foehn winds. The stratocumulus cloud deck over the Sierra is called a foehnwall or cap cloud and its downslope extension is known as a cloud fall. After it evaporates the invisible moisture is cooled again in the ascending current and forms the turbulent cumuliform roll cloud.

(NEVADA WEATHER WATCH IS PUBLISHED QUARTERLY. Subscription $3.50 per year. Address: 1895 Royal Drive, Reno, Nevada, 89503).

NEW LOCATIONS FOR DEDECKER'S CLOVER

In 1972 John Gillett described a new clover species from Inyo County, naming it Trifolium dedeckerae after its discoverer, Mary DeDecker (Madrono 21:451-455). This species has been known only from two locations - at 7500 ft. along the Horseshoe Meadows road just south of Carroll Cr. on the east side of the Sierra Nevada, and at 7000-7500 ft. in Wyman Canyon on the east side of the White Mts. Hence, it has been considered to be a rare species.

In the course of my work in eastern canyons of the southern Sierra, I have encountered 3 additional populations, as follows: 1) a large population at 7000-7500 ft. in the canyon of the South Fork of Bairs Cr., 2) a sparse population at 8000-8500 ft. in the canyon of the North Fork of Bairs Cr., and 3) a large population at 7500-8500 ft. at the mouth of Shepherd Cr. All populations have been on north-facing slopes. Habitats have been variable, including understory of pinyon pines, stabilized talus at the base of an avalanche chute, cracks in granite rock outcroppings, and a sandy avalanche chute supporting sagebrush scrub. Exploration of other eastern Sierra canyons in this region can be expected to turn up additional populations on north-facing slopes. --John D. Wehausen, Big Pine

BIRD REPORT

Mono Lake - Tioga Pass Region

This summer (1978) a team of ornithologists from the Pt. Reyes Bird Observatory, led by Gary Paige & David Winkler, studied the birds of Mono Lake, with emphasis on the breeding biology of the Snowy Plover. A report on their findings will appear in the next issue of WAUCOBA NEWS. Among the more exciting discoveries were the following: An adult Baird's Sandpiper (almost all previous records are of immatures), the first Mono County record of the Mountain Plover, and the second record of the Wandering Tatler. Thirty-two species of shorebirds have now been recorded along Mono's shores, documenting the Lake's great importance as a migratory stopover to water birds crossing the Western Great Basin.

Eared Grebes were notably scarce at Mono Lake this summer. Instead of the half a million individuals typical of late August, numbers appeared to be under a hundred thousand. Does this reflect normal year-to-year variation? Or is the increasing salinity and alkalinity of the shrinking lake's water beginning to take its inevitable toll on Mono's bird populations?

At high elevations near Tioga Pass, Robert Stewart attempted to pursue his ongoing study of a nesting, partly polygamous population of Wilson's Warblers, but was stymied when most of the birds failed to arrive! Snow still covered his study site in June, and spring seemingly came too late to allow the warblers adequate time to raise their young.

At the Carnegie Institute's Hall Natural Area near Saddlebag Lake, David DeSarte and his students finished their second year of research on the subalpine bird community. This study promises to furnish new insights into almost every aspect of community ecology. We'll have a progress report in the next issue.

--David Gaines

Editor's Note: Tom & Jo Heindel are now teaching in La Paz, Bolivia. A recent letter says "Birding is scarce in their high and dry elevation of 11,000 ft and there are no bird guides to help them in identifications". Their address is American Embassy School, La Paz, Bolivia.

+++++++

RODENTS AND SQUIRRELS
(Sciuromorpha)

RODENTS are probably the most often encountered of any of the mammls, and, as a group, are of utmost importance to man. Many of their species serve as sources of food for predators, hawks, owls, and snakes. They destroy harmful weeds and insects; as fur bearers they have played an important role in the early exploration of western United States, Canada and Alaska. Recreationists going into the forests and at campsites commonly come in contact with a variety of rodents of the squirrel-type that are abroad in daylight. CAUTION: Do NOT Handle! ! All mammals harbor external parasites and at certain times some species transmit disease-causing organisms. Abrasive wounds from bites of any animal can be dangerous and the squirrels will bite. They make extremely poor pets as they dislike being stroked or handled. Because of the frequency that man in his habits comes into contact with these small mammals he has the opportunity to OBSERVE their habits, study their behavior, and ENJOY them as wildlife in their own environment.

THE MOUNTAIN BEAVER, a burrowing, nocturnal mammal of this squirrel-like group, is judged as "the most primitive of all the rodents". Its fossil record dates from the Palaeocene in North America. It lives in the Pacific Northwest, on the western slope of the Sierra Nevada, and is of rare occurrence in Mono County. It is not closely related to the common beaver, the fur-bearer

LIST OF RECORDS OF THOSE SPECIES OF THE SQUIRREL FAMILY (Sciuridae) KNOWN TO OCCUR IN THE OWENS VALLEY BETWEEN THE CRESTS OF THE SIERRA NEVADA AND THE WHITE-INYO Mts. (Owens Lake north to Inyo-Mono Co. line) Reports of other possible occurrences are marked with asterisk:

Chipmunks: Eutamias minimus -(Least Chipmunk)
E. alpinus - (Alpine Chipmunk)
E. merriami - (Merriam's Chipmunk)
E. speciosus - (Lodgepole Chipmunk)
E. panamintinus - (Panamint Chipmunk)
E. umbrinus inyoensis (Inyo Chipmunk)

Squirrels: Spermophilus beecheyi - (Calif. Ground Squirrel)
*Spermophilus mohavensis (Mohave Ground Squirrel)
Ammospermophilus leucurus - (White-tailed Antelope Squirrel)
Spermophilus lateralis - (Golden-mantled Ground Squirrel)
Sciurus griseus - (Western Gray Squirrel)
Tamiasciurus douglasii - (Douglas or Pine Squirrel)
*Glaucomys sabrinus - (Northern Flying Squirrel)

Marmot: Marmota flaviventris - (Yellow-bellied Marmot)

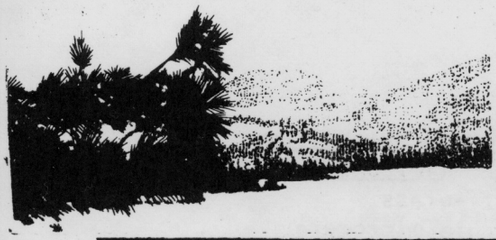
ALTITUDINAL RANGES will be given in a future issue of Waucoba News. --Enid A. Larson

++++++++++

Two active Goshawk nests were located by USFS biologists east of the Sierra crest between Mammoth & June Lake during summer, 1978.

At least 3 Acorn Woodpeckers were observed in Big Pine on Sept. 8, 1978. Previous sightings of this species in Owens Valley were in vicinity of Mt. Whitney Fish Hatchery, nr. Independence, Ca. Dec.-Apr. of this past year (1978).

--Larry White, Big Pine, Ca.



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Volume II
Supplement 1
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 4 Issues per year

Notes on Inyo County Grasses - 3
The Oat Tribe (Aveneae) in the Inyo Sierra
By John Thomas Howell

Avena. Oat.
sativa L. Cultivated Oat. Fleetingly spontaneous along roads and trails and about pack stations, as at Carroll Creek corral. Introduced.

Danthonia. Oat Grass.
intermedia Vasey. Moist or dry soil in rocky places and meadows, subalpine on Rock Creek up to 11,000 ft.
unispicata (Thurb.) Munro. Dry rocky flats, Rock Creek at 11,000 ft.

Deschampsia. Hair Grass.
caespitosa (L.) Beauv. Moist or wet meadows, common, up to 11,000 ft. (to 12,500 ft. elsewhere in the Sierra).
danthonioides (Trin.) Munro. Drier meadow borders, often in disturbed soil; Mosquito Flat, Rock Creek, 10,300 ft.
elongata (Hook.) Munro. Moist soil; Mosquito Flat, Rock Creek.

Koeleria. June Grass.
macrantha (Ledeb.) Schultes. Dry sandy or rocky flats and ridges, up to 12,200 ft. Erroneously called K. cristata.

Schismus.
barbatus (L.) Thellung. Sandy flats and slopes; roadside in Nine-mile Canyon at 3400 and 4000 ft. Common at lower elevations in Kern Co. Introduced.

Sphenopholis. Wedge Grass.
obtusata (Michx.) Scribn. A rather rare grass found in alkaline or mineralized seepages. No Inyo-Sierra record known but to be expected; collections have been made elsewhere in Inyo Co.

Trisetum.
canescens Buckley. Found on Pine Creek at 8000 ft. under aspens and willows by Victor Duran in 1932.
spicatum (L.) Richter. One of the commonest and most variable Sierran grasses, in meadows, on gravelly flats, and on rocky ridges, up to 12,200 ft. Reputed to be the most widespread flowering plant in the world. Many varieties have been named; 4 occur in the Sierra.
Wolfii Vasey. Moist or wet soil of meadows; Rock Creek at 10,300 ft.

++++++++++

GRASSES & SEDGE

John Wehausen reports an addition to "The Timothy Tribe in the Inyo Sierra" (Waucoba News Vol. 1, Supplement). Muhlenbergia montana (Nutt.) Hitchc. was collected on the south-facing wall of the South Bairs Creek cirque at about 11,200 ft.--as predicted by J.T.Howell. Also, two new locations in the Sierra Nevada for a sedge, Carex incurviformis Mkze. var. danaensis (Stacey): The plateau atop Striped Mt. (Inyo Co.) at 12,800 ft. and the plateau southwest above Woods Lake (Tulare Co.) at 12,000 ft. Both of these plateaus are slightly north-facing. (See Topo map: Mt. Pinchot Quad.) ed.

++++++++++

MONO - The Beautiful

REMEMBERING. In August it will be 40 years since I took my 1938 annual vacation as a 2-weeks "post-man's holiday". It was a camping-trip with my friends, Martin Jussel and Frances Payne, and our objective was the Noldeke cabin on Whiskey Creek near Tom's Place, Mono Co. The trip was noteworthy in several respects but it was particularly remarkable in that it netted more new species and varieties than any other California trip I have ever taken, a total of 9 with 3 named for Mono Co. The Mono Co. plants were: Astragalus Johannis-Howellii Barneby, A. monoensis Barneby, Eriogonum nodosum var. monoense Stokes, Lupinus monensis Eastw., L. rimae Eastw., and Phacelia Peirsoniana Howell. On Mt. Dana in adjacent Tuolumne Co. the plants were: Carex danaensis Stacey, C. subnigricans Stacey, and Lupinus danaus var. bicolor Eastw. Also from Mono Co. were 2 topotypes of rare species which I had recently named: Eriogonum ampullaceum and Penstemon papillatus. It was SOME TRIP! - J.T. Howell

PLANT LIST FOR EUREKA DUNES

(A: annual; P: perennial; WA: winter annual; Sh: Shrub)

A — Abronia turbinata
Sand verbena

P (or WA) — Alliona incarnata
Windmills

A — Antirrhinum kingii
Least snapdragon

P — Astragalus lentiginosus var. micans
Eureka locoweed

WA — Astragalus sabulonum
Sand locoweed

A — Atrichoseris platyphylla
Parachute plant

Sh — Atriplex canescens
Four-wing saltbush

Sh — Atriplex confertifolia
Shadscale

Sh — Atriplex polycarpa
Allscale

A — Atriplex argentea
Silverscale

A or P — Baileya pleniradiata
Woolly marigold

A — Bouteloua barbata
Six weeks grama

A — Camissonia claviformis ssp. integrior
(white flowers)

A — Camissonia claviformis ssp. lancifolia
(yellow flowers)

A — Caulanthus cooperi
Cooper caulanthus

P — Chaetadelpha wheeleri
A broom-like perennial

A — Chenopodium incanum

A — Cleome sparsifolia
Naked cleome

A — Corispermum hyssopifolium
Bugseed

A — Cryptantha circumscissa
Capped forget-me-not

A — Cryptantha micrantha
Purple-rooted forget-me-not

Sh — Dalea fremontii
Fremont dalea

Sh — Dalea polyadenia
Dotted dalea

A — Dicoria canescens ssp. clarkae
Clark dicoria

A — Eriogonum inflatum
Desert trumpet

A — Eriogonum insigne
Ladder buckwheat

A — Eriogonum maculatum
Spotted buckwheat

A — Eriogonum reniforme
Kidney-leaved buckwheat

A — Eriogonum trichopes
Little trumpet

P — Erioneuron pulchellum (Tridens pulchellus)
Fluff-grass

A — Euphorbia micromera
Sonoran sand-mat

A — Euphorbia ocellata var. arenicola
Yellow-flowevered spurge

A — Gilia campanulata
Bell gilia

A — Gilia leptomeria
Sand gilia

Sh — Hymenoclea salsola
Cheesebush

P — Kochia americana
Gray molly

Sh — Larrea tridentata
Creosote bush

A — Malacothrix sonchoides
Yellow saucers

A — Nama demissum
Purple mat

P — Oenothera avita ssp. eurekensis
Eureka primrose- an endemic

WA — Oenothera primiveris
Large yellow primrose

Opuntia basilaris
Beavertail cactus

P — Oryzopsis hymenoides
Indian rice-grass

A — Palafoxia arida
Spanish needle

A — Pectis papposa
Chinch weed

A — Psathyrotes annua
Fan-leaf

A — Salsola paulsenii
Barbwire Russian thistle

P — Sphaeralcea ambigua
Apricot mallow

P — Stanleya pinnata ssp. inyoensis
Inyo Desert-plume

P — Stephanomeria pauciflora
Desert milk-aster

P — Swallenia alexandrae
Eureka dune-grass - an endemic

P — Suaeda torreyana
Inkweed

P — Tiquilia plicata (Coldenia plicata)
String plant

++

The above list of plants refers to those which occur on or closely bordering the Eureka Dunes.

--Mary DeDecker
Independence, Ca.

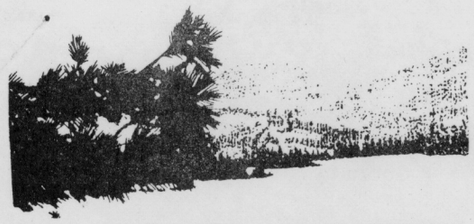
PLANTS NOTED AT THE SALINE VALLEY DUNES

A — Cryptantha costata. a small gray annual
A — Dicoria canescens ssp. canescens Desert dicoria
Sh — Larrea tridentata. Creosote bush
Petalonyx thurberi. Sandpaper plant
Sh — Prosopsis glandulosa var. torreyana. Mesquite

" Other plants undoubtedly occur there, but the variety is decidedly limited. Green clumps of mesquite and creosote bush are attractive features of these dunes. The Dicoria here grows very large and forms handsome colonies in favorable hollows. There is no floral display, however. Only a few annuals appear, even in good years.

Since the fauna is dependent on plant life, it too is sparse in numbers and less varied here than at the Eureka Dunes. It must be kept in mind, however, that both dune systems are important units of the ecological systems in their respective valleys."

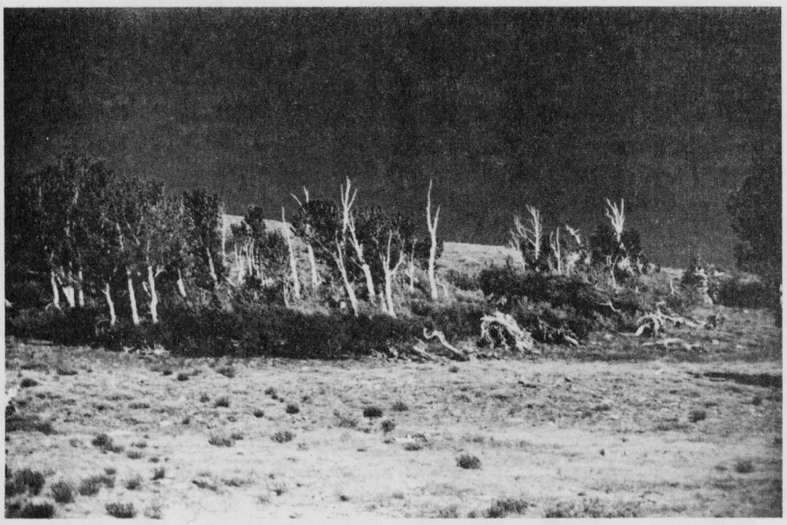
--Mary DeDecker, Independence, Ca.



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 VOLUME III, No. 1
Winter -- 1979
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 4 issues per year

WAUCOBA: A Paiute word for "pine tree" - also, highest peak in Inyo Mts., 11,027 ft.
WAUCOBA NEWS Subscription: Send 4 stamped, self-addressed envelopes, Box 265, Big Pine, Ca.



COYOTE RIDGE
(between Bishop
& Baker creeks)

Photo by EAL
Zeiss Contiflex

Subalpine association where Pinus albicaulis is low-growing; from its mat either a white-bark or a lodgepole has become the central tree

WHITE-BARK and LIMBER PINES

Comments from Dr. Diana F. Tomback, Biology Dept. U.C. Riverside

"The Clark's Nutcracker is the primary dispersal agent of both pines, which have wingless seeds. The nutcracker stores quantities of seed of both these pines every fall in south-facing slopes and throughout the forest floor. During winter and spring, when little other natural food is available, the nutcracker lives off its seed stores. When the bird breeds in February or March, the young are fed primarily on pine seed recovered from stores. Each year, a portion of these seed stores germinates in spring before the nutcracker can get to it. A small percent of the germinated seed produces mature trees. Consequently, the nutcracker is an extremely important part of subalpine ecology; it "plants" both whitebark and limber pine seed in sites very favorable to germination and eliminates much of the "chance" involved in wind-dispersal of seeds. Dispersal by nutcrackers is probably the primary reason why both whiteback and limber seeds "lost" their wings. Wings became unnecessary and were costly to produce by the tree."

INTERIOR LIVE OAK in southern Inyo-Kern

The Interior Live Oak (Quercus Wislizenii) is a zerophytic shrub which also tends to be arboreal. I came upon this oak growing in Sand Canyon in Oct. 1977, and sent specimens to the Calif. Academy of Sciences. The many branched 14-15 ft tall shrubs tended to grow in groups of 8 or 10 strung out at least 0.5 mi parallel to and 60-80 ft above the creek (3600-4000 ft el). Digger Pine, Purshia and Artemisia tridentata grow in the same sandy, rocky habitat of Sand Canyon. The shrubby oaks in Sand Canyon grade into trees 30-50 ft high in this steep canyon, their feet in the water. Short Canyon, south of Sand Canyon also has Interior Live Oak. One shrub was found and collected in Sept. 1978 by this author."

Mary Ann Henry, China Lake, Ca.

Ed. Note: We are grateful to Mary Ann for calling attention to this location of the Interior Live Oak. Few botanists have been aware of the location of these oaks on the eastern slope of the Sierra. Their location appears on the map of Griffen & Critchfield in THE DISTRIBUTION OF FOREST TREES IN CALIF., USDA Forest Service Research Paper PSW - 82/1972 (p. 103).

I N S E C T S

Research and field collections continue throughout the Inyo-Mono-Great Basin with emphasis on Sand Dune Habitats.

DEEP SPRINGS.--The sandy area near the lake has proved to be the only place so far where 2 morphologically distinct populations of one species-group of CLICK BEETLE have been found living in the same area; at the 17 Great Basin sand dunes where this species-group has been found each has yielded but a single population. Pit traps set and visited regularly have given a wide variety of Coleoptera. At Buckhorn Spring at least 40 species of Staphylinidae have been collected and identified. These beetles are in association with the Black Toad habitat where water remains at constant temperature even when the ground is blanketed with snow.

Dr. J. Powell, U.C. Berkeley, was in Deep Springs recently and collected 2 more specimens of a highly modified moth. So far a total of 3 wingless females of this new species have been located in the sandy area near the lake. Its life history and morphology are being studied. The males are thought to be wingless.

--Derham Giuliani, Big Pine

BIRD REPORT

Second Annual Bird Count at Mono Lake
(List supplied by David Winkler)

Mono Lake Christmas Bird Count

	'78	'79
Eared Grebe	43	44
Great Blue Heron	2	1
swan, sp.	-	4 cp
Canada Goose	12 cp	-
Mallard	1	-
Pintail	5	-
Common Goldeneye	1	1
Bufflehead	-	1
Ruddy Duck	5	-
Common Merganser	-	3 cp
duck, sp.	3	-
Goshawk	-	1a
Sharp-shinned Hawk	1	1
Cooper's Hawk	4	1
Accipiter, sp.	1	-
Red-tailed Hawk	11	10
Rough-legged Hawk	16	4
Buteo, sp.	1	-
Bald Eagle	1a,1i	-
Marsh Hawk	1	3
Prairie Falcon	1	-
Merlin	2	-
American Kestrel	2	-
California Quail	1	-
Mountain Quail	1	-
Chukar	4	-
American Coot	10	4
Killdeer	14	9
Common Snipe	3	6
Spotted Sandpiper	4	-
Least Sandpiper	34	2
sandpiper, sp.	-	3
Ring-billed Gull	-	3a
gull, sp.	1	-
Great Horned Owl	5	2
Long-eared Owl	3	-
Belted Kingfisher	1	-
Red-shafted Flicker	29	2
Red-breasted Sapsucker	1	-
Hairy Woodpecker	13	3
Downy Woodpecker	9	1
White-headed Woodpecker	2	-

Summary of Birds Seen

	'78	'79
Horned Lark	19	-
Steller's Jay	106	5
Black-billed Magpie	60	54
Common Raven	10	6
Piñon Jay	250	150
Clark's Nutcracker	76	80
Mountain Chickadee	88	75
Plain Titmouse	2	-
Bushtit	154	2 cp
White-breasted Nuth.	14	3
Red-breasted Nuthat.	8	4
Pygmy Nuthatch	9	6
Brown Creeper	8	6
Dipper	2	3
Bewick's Wren	4	-
Long-billed M. Wren	4	2
Cañon Wren	-	1
wren, sp.	-	2
Mockingbird	1	-
American Robin	370	-
Varied Thrush	4	-
Hermit Thrush	1	-
Mountain Bluebird	25	-
Townsend's Solitaire	34	7
Golden-crowned Kingl.	-	30
Ruby-crowned Kinglet	1	1
Water Pipit	42	12
Northern Shrike	6	-
Loggerhead Shrike	4	-
shrike, sp.	2	-
Starling	62	5
Audubon's Warbler	-	1 cp
House Sparrow	60	4
Western Meadowlark	16	-
Rusty Blackbird	-	1
Brewer's Blackbird	40	8
Cassin's Finch	-	3
goldfinch, sp.	4	-
Pine Grosbeak	3	-
Red Crossbill	17	-
Rufous-sided Towhee	9	-
Slate-colored Junco	5	2
Oregon Junco	168	35
White-crowned Sparrow	1	1 cp
Fox Sparrow	1	-
Swamp Sparrow	-	2
Song Sparrow	25	6

a=adult; i=immature; cp=count period

Vincent Yoder, Lone Pine, Ca. reports sighting a Nuttall's Woodpecker (Dryobates nuttalli) 20 January 1979, 1 mile east of Lone Pine, along Lone Pine Creek. This is the 2nd reported location for this species in Owens Valley.

(Ed.)

* * * * * * * * *

DEDECKER'S CLOVER

An additional population of Trifolium dedeckerae was encountered this past summer. This one was located in a rocky north-facing chute at 8000 ft in the North Fork of Oak Creek in the southern Sierra of Inyo County. Unlike the other populations reported in the last issue of WAUCOBA NEWS, this one is within easy access of a well-established trail with a few plants even growing immediately adjacent to the trail. --John Wehausen, Big Pine, Ca.

Waucoba News

Sponsored by the Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

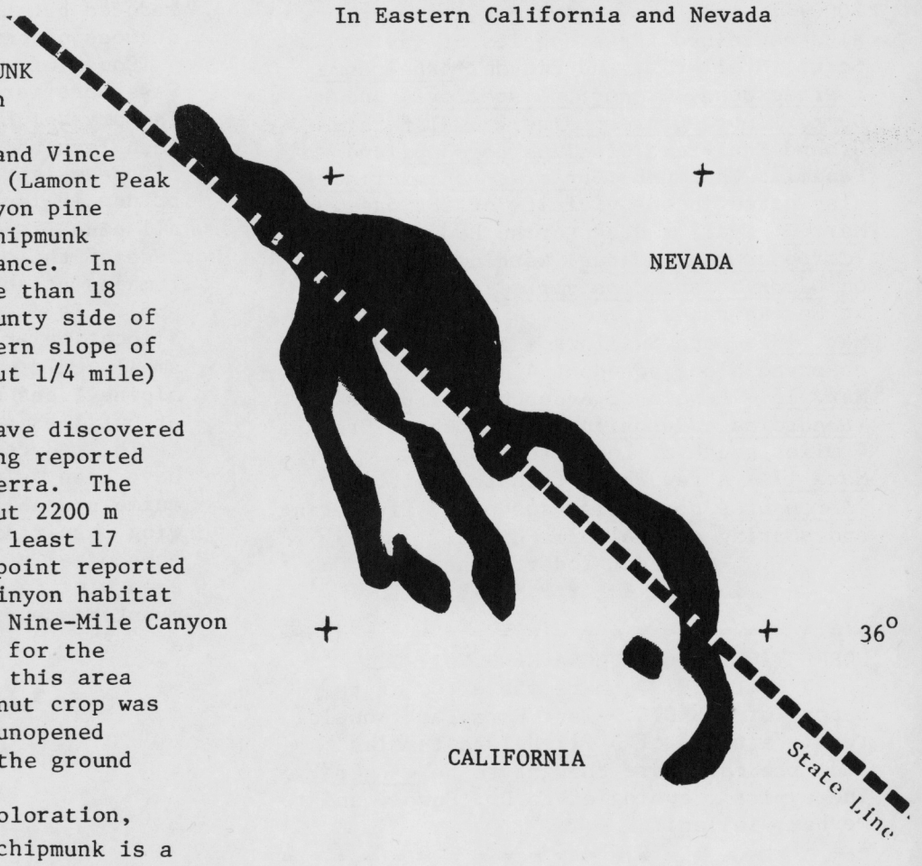
VOLUME III
Spring 1979
4 issues per year

WAUCOBA: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,027 ft.

CHIPMUNKS EAST OF THE SIERRA NEVADA
Report No. 1

Drawing contributed by Art Baca,
Pleasant Hill, California
(from a photograph of Merriam's Chipmunk
taken by Enid A. Larson, Omega 120)

GEOGRAPHIC DISTRIBUTIONAL MAP
of
THE PANAMINT CHIPMUNK
In Eastern California and Nevada



THE PANAMINT CHIPMUNK
A Range Extension

On 3 Mar. 1979, D. Giuliani and Vince Yoder were in the Sacatar Canyon (Lamont Peak Quad. Topo. Map) in a rocky, pinyon pine habitat and found the Panamint Chipmunk (*Eutamias panamintinus*) in abundance. In 2 hours Derham saw and heard more than 18 individuals: some on the Inyo County side of the crest and others on the western slope of the Sierra in Tulare County (about 1/4 mile) west of the crest.

This is the first record I have discovered for this species of chipmunk being reported from the western slope of the Sierra. The elevation of Sacatar Pass is about 2200 m (7200 ft) and its location is at least 17 miles south of the southernmost point reported by Johnson (1943). This rocky pinyon habitat continutes southward to at least Nine-Mile Canyon and needs to be explored further for the occurrence of this chipmunk. In this area of the Sierra Nevada the pinyon nut crop was abundant in autumn of 1978, and unopened seeds of this pine still lay on the ground in March beneath the trees

In addition to distinctive coloration, the behavior of this species of chipmunk is a diagnostic field characteristic.

-- Enid A. Larson, Big Pine, Ca.

SOME NATURE NOTES

Feb.12, 1979 - Male and female Nuttall's Woodpecker (*Dendrocopus nuttallii*) noted along Rt. 395 about a mile S of Lone Pine.

Feb. 14 - A loose flock of about a dozen Tree Swallows (*Iridoprocne bicolor*) along aqueduct and over meadow southerly of Diaz Lake.

Feb. 18 - A flock of about 100 Gray-crowned Rosy Finches (*Leucosticte tephrocotis*) were observed feeding on seeds on the ground under Hop Sage (*Greyia spinosa*) and Shadscale (*Atriplex sp.*). About ¼ of the males were of the gray-headed race, Hepburn Rosy Finch (*L. t. littoralis*).

Feb. 20 and 21 - 4 Turkey Vultures (*Cathartes aura*) soared over Lone Pine for part of the afternoon each day.

Feb. 24 - A Great-horned Owl (*Bubo virginianus*) nest discovered in a willow on the west side of Diaz Lake. Female has been on the nest each visit to date (Feb. 21). Male is often perched in a nearby tree. Motorboats, cars, fishing activities have not caused her to abandon the nest so far.

Feb. 26 - A Common Snipe (*Capella gallinago*) flushed twice out of Lone Pine Creek tributary in the Alabama Hills. Pacific Treefrogs (*Hyla regilla*) in a pond in the same tributary.

Feb. 27 - A Ruby-crowned Kinglet (*Regulus calendula*) observed ½ mi. W of Lone Pine along creek. Screech Owl, grey phase, (*Otis asio*) road kill observed 2 mi. west of Lone Pine.

Feb. 28 - Male Nuttall Woodpecker observed on the west side of Diaz Lake.

Mar. 2 - Violet-green Swallows (*Tachycineta thalassima*) observed along aqueduct 5 mi. N of Lone Pine.

Mar. 3 - A group of over 150 Common Raven (*Corvus corax*) were observed by Derham Giuliani and the writer in the upper easterly end of Sacatar Canyon, el. 7000±'. This pinyon-juniper community also contained three species of jay; Scrub, Steller's, and Pinyon (*Aphelocoma coerulescens*, *Cyanocitta stelleri*, and *Gymnorhinus cyanocephalus*). California Ground Squirrel (*Citellus beecheyi*) and Panamint Chipmunk (*Eutamias panamintinus*) also noted in the vicinity of the pass.

Mar. 6 - Half a dozen or so House Finches (*Carpodacus mexicanus*) were noted feeding on *Dicoria canescens var. Clarkii* seeds at Eureka Dunes.

Mar. 13 - Barn Swallows (*Hirundo rustica*) observed along aqueduct 4 mi S of Lone Pine.

Mar. 15 - A pair of Audubon's Warblers (*Dendroica auduboni*) noted at Lubkin Creek 4 miles south of Lone Pine.

Mar. 17 - A few White-throated Swifts (*Aeronautes saxatalis*) swooping, fluttering, and soaring over Alabama Hills.

--Vincent Yoder, Lone Pine, Ca.

ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ

= =

CORRECTION: In WAUCOBA NEWS Vol. III, Winter, 1979, there was error in the report of INSECTS:--last Paragraph should read: "a total of 3 flightless females" and "the males are thought to be winged". The typist's apologies to Dr. Powell and to Derham Giuliani.

= =

ALABAMA HILLS STUDY

I have initiated a study in the Alabama Hills area near Lone Pine. I plan to identify all life forms as well as I can; note man's activities that affect the area, such as recreation, subdivision, running stock, etc.; keep weather records; record unusual geological phenomenon.

Although I am interested in the entire area my efforts will be concentrated at about 25 sites. Section corners will be used for easy location and permanency, and they are randomly located as to habitat, thus eliminating subjective elements of personal choice. Photographs of the sites have been taken in each cardinal direction. A photo record of certain plants may be made to indicate growth, survival, injury, recovery, etc. I expect to devote the rest of my life to this study (hopefully 20-25 yrs) and "long term" trends may begin to show up.

Since my technical abilities are somewhat limited, professional ideas and help will be most welcome. As the information accumulates and my familiarity with the area improves, the study will be of increasing value, I hope, to interested persons, groups, public agencies, etc., who may have free access thereto. I may be contacted through telephone number 876-4275.

Vincent Yoder

ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ

Comment on Seed Dispersal in *Pinus*

Dr. Tomback's emphasis on the Clark's Nutcracker as the primary dispersal agent for seeds of *P. albicaulis* and *P.flexilis* (Waucoba News 3:1) cannot be questioned by those who have spent time in subalpine habitat. However, her speculation that the seed wings were "lost" because they "became unnecessary and were costly to produce by the tree" is not well founded.

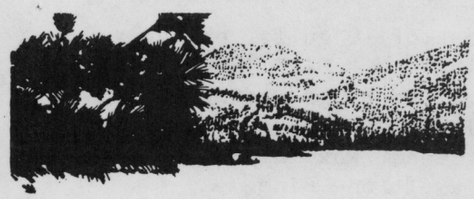
P. flexilis is known to produce seed wings which remain within the cone as the seed is shed (Munz '59, Sargent '35, Jepson '25). The seed wing of *P. albicaulis* is highly reduced but nevertheless present in varying degrees of development (Jepson '25).

Cones of *P. albicaulis* collected near Sonora Pass bore large seeds with the reduced wings. The dry weight of the seed wings was always much less than 0.0050 gm, a small fraction of the weight of a typical seed (.0569 gm) or needle leaf (.0208 gm). The seed wing in all pines is apparently derived from the surface of the ovuliferous scale to which it remains attached in these two species (Sporne '65). It does not seem likely that carbon allocation strategies are sensitive to such a small scale of economy, especially since subalpine trees may produce an entire crop of unfilled seeds during unfavorable periods.

The reduction in seed wing size may, however, have been selected for by discriminating animals unable to accomodate a tough, fibrous wing unsuited for a given oral, dental or esophogeal geometry. The persistence of the seed wing in populations of trees implies a maintenance of genetic variation.

Bruce M. Pavlik

ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ ǂ



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum

VOLUME III
No. III
4 issues per year

WAUCOBA: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,027 ft.

A DEFOLIATED BRANCH OF THE

JEFFREY PINE

Mono County, California

Photo by D. Giuliani
June 15, 1979

PANDORA MOTH

Near Crestview, Mono County, California, a spectacular natural history event took place this spring. On June 15, 1979, from the summit of Lookout Mt. east of Highway 395, I could see a corridor, stretching about 8 miles in an east-west direction and approximately 1½ miles in width, in which most of the Jeffrey Pine trees had been severely or completely defoliated by the action of the larvae of the Pandora Moth, *Coloradia pandora*. This defoliated area lies between Mammoth Junction and Deadman Summit immediately north of Dry Creek and is bisected by the Highway. Caterpillars were of two sizes: most 3-4 inches in length, some only 1 inch long. Most were in the trees, many moving about over the ground. Lodgepole Pines, though not defoliated, often contained large numbers of larvae,some of which were observed eating the leaves.

The larvae of this moth have had a long history of use by the Paiute Indians of Inyo and Mono counties as a food source. According to the Paiutes here in Big Pine, both the caterpillar and the prepared dish made from them are known as "P aug ghee".

In July 1978 John Derby, Inyo National Forest Ranger, stationed at Mammoth, reported large numbers of adult moths clinging to a lighted outside wall of a building at Crestview. The moth has a wing span of about 4 inches.

Five caterpillars I picked up from the ground on June 15, 1979 pupated in a terrarium without soil on June 25. Jack Edell, Bishop, reported that larvae went into the soil in his terrarium the day after he collected them. Jack made many observations on their movements and behavior.

Essig in INSECTS OF WESTERN NORTH AMERICA states that 2 years are required to complete the full life cycle. Eggs are laid on Jeffrey Pine bark in May-June-July; the eggs hatch in August, and the young larvae overwinter in the tops of the trees. In the Spring they feed voraciously on the leaves, enter the ground and pupate in June and July.

According to Paiutes and other residents of the area, the numbers were the greatest ever seen by them.

--D. Giuliani

Editor's Note: As this issue goes to press in late July, observers have reported that some of the pines are already regrowing leaves so that the trees no longer looks as devastated.

SOME NATURE NOTES FROM ALABAMA HILLS

Feb. 14, 1979 - 2 Swainson's Hawks *Buteo swainsoni* observed in Alabama Hills near Lone Pine.

Mar 13 - A Swainson's Hawk seen in Ala Hills.

Mar 20 - A Swainson's Hawk noted 1 mi E of Lone Pine. A gull, probably California, *Larus californicus,* soaring ½ mi S of Lone Pine.

Mar 21 - 2 Swainson's Hawks soaring in Ala Hills. 4 Turkey Vultures *Cathartes aura* soared north over Lone Pine.

Mar 23 - Black-throated Sparrow *Amphispiza bilineata* in Ala Hills.

Mar 31 - A Turkey Vulture soaring over Ala Hills.

Apr 1 - 2 Turkey Vultures soaring over Ala Hills. Canyon Wren *Catherpes mexicanus* singing along Tuttle Creek in Ala Hills.

Apr 5 - Black-chinned Hummingbird *Archilochus alexandri* in Ala Hills.

Apr 7 - Bullock's Oriole *Icterus bullockii* seen in Lone Pine.

Apr 12 - Blue-gray Gnatcatcher *Polioptila caerulea* in Ala Hills.

Apr 14 - American Goldfinches *Spinus tristus* and Orange-crowned Warbler *Vermivora celata* in Ala Hills.

Apr 17 - 16 gulls, probably California, soaring S of Bishop.

Apr 18 - 20 Bonaparte's Gulls *Larus philadelphia* rafting on Diaz Lake S of Lone Pine.

Apr 20 - *Empidonax sp.* and Chipping Sparrow *Spizella passerina* in Ala Hills.

Apr 23 - An hour's visit to Diaz Lake produced the following observations:
2 male, 1 female Western Tanagers *Piranga ludoviciana*
Many Western Kingbirds *Tyrannus verticalis.*
2 MacGillivray's Warblers *Oporonis tolmei.*
Many Wilson's Warblers *Wilsonia pusilla.*
A Myrtle Warbler *Dendroica coronata.*
2 Great Horned Owls *Bubo virginianus,* first seen Feb. 24, Female still on the nest, male roosting in large cottonwood nearby.
3 Ash-throated Flycatchers *Myiarchus cinerascens.*
1 male, e female Black-headed Grosbeaks *Pheucticus melanocephalus.*

Apr 24 - Small flock of Pinyon Jays *Gymnorhinus cyanocephalus* flying N over Ala Hills.
Turkey Vulture soaring 5 mi N of Independence.
A Sphinx Moth *? Celerio sp.* in Ala Hills hovering around *Lycium Cooperi* and feeding by inserting long tongue into blossoms.

Apr 30 - 3 flocks of Pinyon Jays (100+) flying N through Ala Hills. Mourning Dove *Zenaidura macroura* in Ala Hills.

May 1 - Flock of 17 Pinyon Jays flying N through Ala Hills.

May 3 - 6 flocks (335+, 1 flock over 200) Pinyon Jays flying N through Ala Hills. Townsend's Warbler *Dendroica townsendi* and Warbling Vireo *Vireo gilvus* in Ala Hills.

May 4 - 7 flocks (330+, 1 flock over 100) of Pinyon Jays flying N through Ala Hills.

May 5 - 4 Turkey Vultures circling over Lone Pine.

May 11 - 5 flocks (115+) of Pinyon Jays flying N through Ala Hills. Yellow Warbler *Dendroica petechia* noted at Diaz Lake.

May 12 - A flock of 10+ Pinyon Jays flying N over Lone Pine.

May 16 - 2 Pinyon Jays flying N over Lone Pine.

May 17 - A flock of 10 gulls, probably California, flying N a mile E of Lone Pine.
A pair of Lazuli Buntings *Passerina amoena* and Phainopeplas *Phainopepla nitens,* and a small flock of Cedar Waxwings *Bombycilla cedrorum* 1 mi N of Lone Pine.

May 19 - A Scott's Oriole *Icterus parisorum* among Joshua Trees *Yucca brevifolia* 2 mi NW of Darwin.

May 20 - 2 Turkey Vultures soaring N of Independence.

May 25 - Bullock's Oriole road kill examined in Independence. Barn Owl *Tyto alba* road kill examined 6 mi N of Lone Pine.

May 28 - Blue Grosbeak *Guiraca caerulea* in Ala Hills.

May 29 - Swainson's Hawk soaring in Ala Hills.

May 30 - Turkey Vulture soaring in Ala Hills.

Jun 1 - Turkey Vulture soaring in Ala Hills.

June 12 - Red-tailed Hawk *Buteo jamaicensis* nest high up a cliff in Ala Hills. The pair were quite disturbed by my presence nearby below the nest. Turkey Vulture in Ala Hills.

Jun 14 - Lesser Nighthawk *Chordeiles acutipennis* in Ala Hills.

Vincent Yoder, Lone Pine

****

E. GANN, Bishop: Reported that he located and observed 6 nests of the Long-eared Owl during early Spring, 1979

****

RECOMMENDED READING

A report from the ongoing research of Sherman and Morton gives an introduction to the natural history of the Belding Ground Squirrel. See: Am. Mus. Nat. Hist. Magazine June/July 1979, vol.88, no. 6. This magazine is available in county libraries. Sherman and Morton based this account on their 10 years of field observations of colonies of ground squirrels near Tioga Pass. The Belding lives in the high subalpine meadows of the Sierra and its individuals are commonly seen standing as "picket pins" or darting into their underground burrows. The photographs of this squirrel which accompany the article are excellent. A bibliography of the published papers by these authors has been included; their scientific papers may be consulted by requesting the publishing journal on interlibrary loan.

Among the interesting findings of these field workers reported in FOUR MONTHS OF THE GROUND SQUIRREL:

Females spend their lives near their female ki
Belding females recognize their close kin
Food is not cached; energy stored as body fat carries them through long hibernation
Cooperation is a part of their way of life.

--Reviewed by Enid A. Larson

****

WAUCOBA NEWS is prepared and printed at the expense of the editor as a PUBLIC SERVICE and as a contribution to the NATURAL HISTORY of the eastern slope of the Sierra Nevada. Donations allow for the photos.

The Bishop Museum and Historical Society aids by distributing copies to its paid members: $5.00 annual dues.

Envelopes, stamped and self-addressed, 9 x 4 inches, which you send to Big Pine reach the addressee direct from the editor.

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Volume III
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 Autumn 1979
Subscription: Four 9" long stamped self-addressed envelopes 4 issues per year
or a membership ($5.00) in Bishop Museum

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

ANVIL-SHAPED CLOUDS
at sunset over Owens Valley

Photo by Enid A. Larson
Zeiss Contiflex

The form of this cloud is not commonly seen.

(See Cloud Atlas, published in Paris, France)

W E A T H E R

The recent (1975-77) drought in California and parts of Nevada brought severe water shortages to many areas and raised some serious questions about man's actual and potential effects on weather modification and climatic change. Was our rapidly growing industry and traffic somehow responsible for the adverse weather experienced in many regions? Is it possible to "manage" atmospheric water resources? Specifically, can storms be affected by cloud seeding in such a manner that they deposit additional precipitation, and thus provide greater runoff for storage, in designated areas?

In addition to man's deliberate efforts to modify the weather, which is the main topic of this discussion, we also have to consider changes in climate that have occurred in the past and those that are taking place at the present as a result of natural weather modification. These natural effects include large forest or range fires and volcanic eruptions. There is another aspect of the problem to consider, too: perhaps as important as deliberate attempts to influence weather are man's inadvertent effects caused by the burning of fossil fuels (air pollution) and the manner in which big cities act as "heat islands" that may profoundly change the weather and climate in their vicinity.

In northern latitudes almost all precipitation involves the freezing process and particles called freezing nuclei. Atmospheric scientists disagree on the nature of these particles and on the methods of measuring them. It is agreed, however, that there are far fewer of these, both in the type of material and the number on which ice crystals form. There is evidence to show that some are kaolins (clay particles) of terrestrial origin, and there is evidence, too, to suggest that some of them are of extra-terrestrial origin -- meteoric dust which filters down through the atmosphere. --Harold Klieforth.

The above has been excerpted from an article by HAROLD KLIEFORTH on Weather Modification in Eastern California & Nevada that appeared in NEVADA WEATHER WATCH Vol. IV, No. 2, April-June 1979. Your editor highly recommends this article for general reading: it gives not only the history and summary of cloud seeding practices but raises provocative questions concerning man's effects on regional weather and long-range climatic changes. The Cover Photo by THOMAS HENDERSON, Fresno, Ca., shows rain falling from a towering cumulus cloud that formed over the Kings River Watershed and was seeded with Silver Iodide by aircraft.

Nevada Weather Watch, 1895 Royal Dr., Reno, Nev. 89503, gives weather records from the Bishop, White Mt., and Death Valley stations in California, and is of interest to Inyo-Mono.

--Enid A. Larson, Big Pine

M A M M A L S

MULTIPLE OCCUPANCY OF A NIGHT SHELTER BY THE Inyo Chipmunk - *(Eutamias umbrinus inyoensis)*

Early in September, 1979, I was camped in Big Pine Creek Canyon at 9600 ft. el. With approach of dusk I watched 10 of these chipmunks converge upon a dead Jeffrey Pine. Each ascended the trunk to more than 60 ft above ground and entered either a natural knothole or crept into a longitudinal natural slit partly hidden by loose bark. Before the sunlight reached the top of this snag the following morning all 10 had descended. The following evening I positioned myself to observe the northeast side of the trunk; D. Giuliani was positioned on the west. Altogether we counted 13 individuals that ascended and entered. Three had climbed on the eastern side. At least 6 entered other than by the natural knothole. The entrances of 3 were delayed with repeated entrance and withdrawal until finally all was quiet at this night shelter site. At least 3 age groups were involved (1 adult was positively identified, others were immatures of 2 ages).
Woodpecker holes were numerous but these were not used for entrance or exits on the 2 nights and mornings that we watched.
Question: Did all 13 individuals pile up together? Was this shelter site like an "apartment" with several separate housings? These questions remain unanswered.

--Enid A. Larson

****

MUSHROOMS, CHIPMUNKS and FOREST TREES

The USDA Forest Service's PACIFIC NORTHWEST FOREST and RANGE EXPERIMENT STATION in Corvallis Oregon has presented a series of papers on the role of fungi in contributing to nutrient transfer from soil to roots of forest trees. The importance of these soil organisms toward maintaining the growth and health of woody plants has usually been <u>ignored</u> in forest management practices. Now it is known that "The below-ground ecosystem" is a major element in the synthesis of plant-associated processes.
(See: Range Sci.Ser. #26, Colorado State Univ. Fort Collins, Colorado).
These fungi contribute free water, recycle their high concentrations of Calcium, Copper, Iron, Nitrogen, and Zinc, produce enzymes and vitamins essential to woody plant growth.
On the forest floor small mammals, chipmunks, squirrels and deer mice are the important agents for spreading the spores of the fungi which they eat. For example, the Yellow-pine chipmunk (*Eutamias amoenus*) upon examination had 86 per cent of its ingested food as fruiting bodies of fungi. The spores remain viable after passing through the rodent's digestive system and are spread by fecal pellet deposit.
The authors, Maser, Trappe & Ure, identify this link in the ecology of the forest as <u>the</u> critical factor to optimum functioning of any coniferous forest system. With the identification of this factor, the authors challenge Forest Management to deal with the forest as an open system that cannot be unilaterally compartmentalized, and hence, to discontinue its management of only disjunct unit-components.

--Abstracted by Enid A. Larson for Waucoba News.

References: Maser, Chris and James M. Trappe and Ronald A. Nussbaum. Fungal-small mammal interrelationships with emphasis on Oregon coniferous forests. Ecology 59 (4) pp 790-809. 1978.

Maser, Chris, and James M. Trappe, and Douglas C. Ure. Implications of small mammal mycophagy to the management of western coniferous forests. Trans. 43rd No. Amer. Wildlife & Natural Resources Conf. 1978.

Provacative thoughts: "The outstanding discovery of the 20th century is not television, or radio, but rather the complexity of the land organism...The last word in ignorance is the man who says of an animal or plant: "What good is it?" If the land mechanisms as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is a first precaution of intelligent tinkering."
--Leopold A. <u>in</u> A Sand County Almanac.

****

BIRDS

CALIFORNIA GULL STUDY...This summer, David Winkler completed the first year of a 3-4 year study of the nesting ecology of Mono Lake's California Gulls. He is focussing on the relationship between adults and young.

WATCH FOR COLOR-BANDED GULLS

Winkler and his co-workers, working on the islets northeast of Negit Island, banded 1200 gull chicks with Fish & Wildlife Service aluminum and color bands (either red or green). The color and location of the bands on the gull's legs are coded according to the area of the colony where they were hatched.
Please search the California Gulls that you encounter for leg bands and send your observations to WAUCOBA NEWS or

David Winkler
Museum of Vertebrate Zoology
University of California
Berkeley, CA 94720

****

CATBIRD seen in Big Pine, October 28, 1979

The Catbird, *Dumetela carolinensis* with its black cap and dark slate-gray body came to my bird bath and drank. It was within 6 ft of my glass window. At the edge of dense cover it paused on the ground and flicked its long tail many times. It came to the water basin twice to drink.

Whether this is the first record for this species on the floor of Owens Valley I have been unable to find out. Peterson says "accidental in California". This is not the first record for Inyo County; I reported one at Last Chance Spring 2 years ago in Waucoba News.

--Enid A. Larson

****

WAUCOBA NEWS is awaiting receipt of a checklist of beetles for Eureka Valley from Dr. Fred Andrews, Sacramento.

D. GIULIANI is out of town on an intertidal collecting trip as this issue of WAUCOBA NEWS goes to press. His report on insects will be in the next issue.

V.YODER will report on his bird observations from Lone Pine in the next issue.

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum

VOLUME III
Supplement No. 1
4 issues per year

WAUCOBA: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,027 ft.

LIMBER PINE
Pinus flexilis

Although Limber Pine, according to Griffen and Critchfield (1972), ranges from southern Alberta east to South Dakota and south to New Mexico, its western distribution is spread over desert mountain tops of southern and east-central California where it grows only as far north as the Sweetwater Mountains in Mono County. As a subalpine species it occurs in small stands, or as isolates--never in groves; it is uncommon in California except for its occurrance on the eastern side of the crest of the Sierra Nevada and in the Inyo-White mountains at their higher elevations.

In 1972, Derham Giuliani and I located some limber pines in the Owens River Gorge, growing there at a low elevations. Cones were sent to the California Academy of Sciences for positive identification.

WHAT WERE LIMBER PINES DOING IN THIS LOCATION IN MONO COUNTY? We spent two days in this area investigating and we learned the following?

(1) There is a small group of these pines about 1/2 mile below the City of Los Angeles dam at the lower end of Crowley Lake. At lowest elevation in this gorge these pines are growing at 6700 ft; one tree was located in the bottom of the canyon within 100 ft of the stream bed. These pines are growing on a steep north-facing slope within the Owens River Gorge as a group and isolated trees continue down canyon for an estimated 1/2 mile.

On the east side of Pine Glade (U.S. Forestry area designated for summer homes) a paved road leads to the Dam. We followed a side road to the east from this pavement and reached the edge of the mesa and looked down into the Gorge. From this point we were looking down upon the main concentration of the outliers of this Limber Pine group. There were many young trees and all appeared in healthy condition, even though some of the larger trees were weatherbeaten. Cone-bearers were numerous. The trees were growing on what appeared to be tuffaceous substrate.

Across the Owens River, on the south-facing slope, the soil looked to be that of basaltic origin and on this substrate and exposure, only a few scattered pinyon pines were growing. Our search of the slope with binoculars revealed no evidence of any Limber Pines.

A number of Panamint Chipmunks were present in association with the Limber Pines on the north-facing slope; one Pine Squirrel (Tamiasciurus douglasii) was also present.

(2) We walked upslope about 300 ft to the summit of the mesa and there we located 1 small Limber Pine growing in close association with 2 young pinyons and 1 yellow pine. All were less than 12 ft in height.

(3) To unfold this mystery of how the Limber Pines got into the Owens River Gorge we followed the contour line around 2 hills southwest of the Dam and in this traveling (ca 2 miles) we located several isolated Limber Pines. These were growing together with Sierra Juniper, Pinyon and yellow pine. We saw one limber Pine growing out of a crack in a large boulder of tuff. This tree, about 3 feet in height was already bearing cones. Another tree with cones was within 100 ft at the edge of the southwestern wall of the Gorge where but few other Limbers were seen. The top of the Gorge where this tree was growing was ca. 7100 dt elevation.

(4) We attempted to identify the old drainage channel of Rock Creek leading to its confluence with Owens River before the channel was cut off by the Sherwin Till which in earlier years had forced Rock Creek to turn southward. On the second hill south of Crowley Lake Dam we located a single tree of Limber Pine at 7200 ft; another at 7300 ft; and another Limber was growing along a dirt sideroad to the right of the "old pavement". In this area there were no young Limber Pines. One-quarter mile east of Highway 395 about 2 miles north of Pine Glade we saw 3 more Limbers. These trees traced for us the probable route that the Limbers had taken and we were now almost to the base of the Sierra. Spread out before us was evidence of the path that Pinus flexilis may have followed to reach Owens River Gorge in the days of glaciation when the climate in the area allowed for subalpine plants to become established at lower elevations than can be found today.

In contrast to the vigorous growth showed by trees in the small group within the Gorge, those Limber Pine trees between Highway 395 and the Dam at the end of Crowley Lake which now occur in isolation, none were bearing cones. These seem to be outliers from a larger population that once must have formed an extensive forest corridor from Little Round Valley to the Owens River. Two miles up Rock Creek from Highway 395 (west of Tom's Place) we came upon the first Limber Pine growing in the Sierra. It was on a northwest-facing slope at elevation 7950 ft in the canyon. There this Limber was in association with yellow pine and lodgepole.

Ref. map of pines in California: THE DISTRIBUTION OF FOREST TREES IN CALIFORNIA, USDA Forest Service Research Paper PSW - 82/1972 by James R. Griffin and William B. Critchfield.

--Enid A. Larson, Big Pine, Ca.

Notes on Inyo County Grasses - 4
The Blue Grasses (*Poa*) in the Inyo Sierra
By John Thomas Howell

P. annua L. Annual Blue Grass. Probably so common that is not collected -- it is to be expected as a weedy grass in moist ground about cabins, along roads and trails, and perhaps naturalized in meadows and pastures. Only two collections have been seen: along trail east of summit of Olancha Pass, 9000 ft.; Mosquito Flat, Rock Creek Lake Basin, 10,300 ft. (the highest station known in California). Introduced.

P. epilis Scribner. A rather common alpine and subalpine blue grass in the Sierra but no specimen has been seen from Inyo Co. It must be here since it is just west of the crest in Fresno Co. (Mono Creek, ca. 11,00 ft.) and in Tulare Co. (Center Basin, ca. 12,000 ft.; Mitre Basin, 11,500 ft.).

P. Fendleriana (Steudel) Vasey (including *P. longiligula* Scribner & Williams). Mutton Grass. Mapped as occurring the entire length of the Sierra in Inyo Co. by Beetle (Hilgardia 17:333, Map 129) but no collection has been seen. Mutton grass has been collected in adjacent Tulare Co. near Kennedy and Bakeoven meadows.

P. gracillima Vasey. Rather common on rocky slopes and flats from Army Pass to the Rock Creek area, 8000 to 12,000 ft., generally at timberline or below (to 12,200 ft. in Lone Pine Canyon according to Carl Sharsmith).

P. Hansenii Scribner. Rather common in rocky meadows and on unglaciated flats near timberline or above, Army Pass to Rock Creek Lake Basin, 10,700 to 12,200 ft. *P. Leibergii* of California references. According to Keck, southern Sierran reports of *P. Pringlei* are referable to *P. Hansenii*.

P. incurva Scribner & Williams. High meadows, rocky flats, talus slopes, common and widespread in subalpine and alpine places from Mt. Whitney to the Rock Creek Lake Basin, generally 10,000 to 12,000 ft. elevation, but on Bishop Creek at 7000 ft.

P. leptocoma Trinius. A delicate and usually inconspicuous grass of moist banks and flats; the only Inyo Co. specimen seen is from Little Cottonwood Creek at 10,000 ft. (Howell in 1949). Occasional westward in Tulare Co. in the Monache area and on Rock Creek.

P. Lettermanii Vasey. Rocky slopes and flats above timberline, perhaps the rarest Sierran blue grass: Mt. Darwin, 13,300 ft., Fresno Co., Raven & Stebbins in 1950; north side of Junction Pass, 13,000 ft., Tulare Co., Howell in 1948; east side of (Old) Army Pass, 12,000 ft., Inyo Co., Howell in 1949; Red Slate Mountain, 13,100 ft., Mono Co., Major & Bamberg in 1962. This rare grass has also been reported in Mono Co. from White Mountain Peak, 14,000 ft.

P. nervosa (Hook.) Vasey. Occasional in sandy or rocky soil in meadows, on talus slopes, and rocky ridges from Rock Creek Lake Basin to Big Pine Lakes, generally in the upper forest belt but ascending to Arctic Fell-fields (to 12,400 ft. on Inconsolable Range).

P. nevadensis Vasey. Widespread on the east slope of the Sierra in moist or dry soil of brushy slopes and low meadows; collected in the Inyo Sierra on Rock Creek and in Owens Valley at Bishop.

P. palustris L. Fowl Blue Grass. Indigenous in the northern Sierra in wet ground about ponds and along streams; perhaps introduced at 9000 ft. on Bishop Creek at Andrews Camp (Raven in 1950).

P. pratensis L. In moist or wet soil from lower elevations to subalpine meadows and slopes (Rock Creek, Big Pine Lakes, Onion Valley), to 10,500 ft. or perhaps higher; common and widespread.

P. rupicola Nash. Rather common on rocky ridges and gravelly flats along the crest of the Sierra, 11,000 to 13,000 ft. Although generally known as Timberline Blue Grass that common name is not appropriate in the Sierra where the occurrence of the grass is almost entirely alpine and above timberline.

P. scabrella (Thurber) Bentham. Rocky places in sandy soil along the foothills from Nine-mile Canyon and Lone Pine to Bishop, up to 7000 ft. on South Fork of Oak Creek, and at 6400 ft. on Bishop Creek; not common.

P. Suksdorfii (Beal) Vasey. The most frequent of the dwarfed arctic-alpine blue grasses, in grassy patches in alpine Fell-fields, the following seen from Inyo Co.: Mt. Muir, 13,000 ft., Sharsmith; Sam Mack Lake, 12,000 ft., Howell; Inconsolable Range, 12,000 ft., Howell; near Mt. Powell, 12,600 ft., E. Michael, Raven & Stebbins; Mt. Dade, 11,900 ft., Peirson.

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 VOLUME III
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 SUPPLEMENT No. 2 1979
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum 4 issues per year

Notes on Inyo County Grasses - 5
The Fescue Grasses (Festuca) in the Inyo Sierra
By John Thomas Howell

1. Perennials. Festuca subgenus Festuca

F. ovina L. var. brevifolia (R. Brown) Watson. Alpine Fescue. Rather common and widespread in rocky soil and on rocky slopes from subalpine forests to arctic fell-fields, 10,200 to 12,200 ft. and probably higher. It has been collected at 13,400 ft. in Fresno Co.--F. brachyphylla Schultes.

F. pratensis Hudson. Meadow Fescue. To be reported in the Inyo-Sierra only from trailside near Lake Sabrina at 9600 ft. To be expected in meadows where seeded to improve forage. Native of Europe.

F. rubra L. Red Fescue. Mosquito Flat on Rock Creek, 10,300 ft.

2. Annuals. Festuca subgenus Vulpia

F. Grayi (Abrams) Piper. West of Independence at 5000 ft.; also in Alabama Hills.

F. megalura Nutt. Foothills south of Bishop; Whitney Portal Road at 7700 ft. Introduced from the Mediterranean region.

F. octoflora Walter var. hirtella Piper ex Hitchcock. West of Independence at 5000 ft.; Whitney Portal Road at 6500 ft.

F. pacifica Piper. Onion Valley Road at 6800 ft.; also in Alabama Hills.

Notes on Inyo County Grasses - 6
The Brome Grasses (Bromus) in the Inyo Sierra
By John Thomas Howell

B. carinatus H.& A. (including B. marginatus Nees). Meadows, open woods, disturbed areas, widespread, 7000 to 11,000 ft.

B. ciliatus L. Wet or moist ground in Big Pine Lakes area 9-10,000 ft.

B. diandrus Roth. (B. rigidus of Calif. references.) Ripgut Grass. Rare Old World grass in disturbed ground as at Carrol Creek and on Olancha Pass Trail.

B. inermis Leysser. To be expected along roads and trails where introduced for erosion control or in meadows to improve pasture.

B. mollis L. Known in 19 counties in the Sierra but no Inyo Co. record has been seen! This Old World grass must be there too!

B. Porteri (Coulter) Nash. Dry gravelly slopes and flats, rather common in vicinity of Whitney Portal; ascending to 11,000 ft. in Rock Creek Lake Basin.

B. rubens L. Red Brome. Dry disturbed soil along roads and trails, 4000 to 7700 ft. Introduced from the Old World.

B. Suksdorfii Vasey. In moist brushy or wooded places, as at 10,000 ft. above Lake Sabrina.

B. tectorum L. Downy Chess. Common and widespread in both natural and disturbed areas, up to 11,000 ft. in Rock Creek Lake Basin; both the typical form and var. glabratus Spenner. Native in the Old World.

B. Trinii E. Desvaux. Along the base of the Sierra as in Nine-Mile Canyon, on Richter Creek wash, in Alabama Hills, and near Bishop. Native of Chile.

B. unioloides Kunth. Rescue Grass. Spontaneous about corrals and along roads and trails, 5500 ft. (Carrol Creek) to 9000 ft. (Olancha Pass Trail). Native in South America. In Calif. this species has been called B. catharticus, Haenkeanus, and Willdenowii.

COMMENTS ON "WINGLESSNESS" IN PINES:
Morphology and Evolution

The quotation which appears in Waucoba News, Winter 1979, on the role of the Clark's Nutcracker (Nucifraga columbiana) as a dispersal agent for whitebark (Pinus albicaulis) and limber pine (P. flexilis) comes from a letter sent to the editor, Ms. Enid Larson. Bruce Pavlik's comments on this quotation in Waucoba News, Spring 1979, provide an opportunity for me to elaborate.

The structure referred to as the "wing" of a pine seed is a membranous tissue (spermoderm) attached to the seed coat (testa) of a pine seed. Both the seed coat and wing are derived from the integument of the scale of the female cone (megasporangiate strobilus) in which the seed is formed (Mirov, 1967, The Genus Pinus, Ronald Press). Seeds which are shed from cones with seed wings intact may be carried by wind or local air currents some distance from the parent tree. The distance of dispersal probably varies with seed weight, tree height, and wind speed (Baker, 1950, Principles of Silviculture, McGraw-Hill).

Of the approximately 105 species of pines, about 24 have "lost" functional seed wings (pers. communication, R. M. Lanner, Utah State University). These pines are generally termed "wingless" and, in most cases, depend on dispersal agents other than wind. In "wingless" pines the seed wings are much reduced in size and/or adhere to the cone scale rather than the seed. Contrary to the statement of van der Pijl in his well-known book (1969, Principles of Dispersal in Higher Plants, Springer-Verlag), there is much evidence to show that winged seeds are the primitive condition and "wingless" seeds the derived. For example, within the "wingless" Cembrae pines (classification according to Critchfield and Little, 1966, Geographic Distribution of the Pines of the World, U.S.D.A.), we see a continuum of wing characteristics: in P. koraiensis the full-sized seed wing adheres to the cone scale, in P. cembra the seed wing is reduced in size and adheres to the cone scale, in P. albicaulis the seed wing is essentially gone (Shaw, 1914, in Mirov, 1967, op cit).

Mr. Pavlik reports collecting whitebark pine cones bearing seeds with reduced wings at Sonora Pass (Waucoba News, Spring 1979). I assume he was referring to wing remnants. I collected P. albicaulis cones from Mammoth Mountain in 1975 and 1976; and, attached to the scales were tiny remnants of seed wings which varied somewhat in size from cone to cone. Small wing remnants in P. albicaulis cones also were noted by Sudworth (1908, Forest Trees of of the Pacific Slope, U.S.D.A.). Variation in the size of wing remnants is not unexpected since so many cone and seed characteristics are polymorphic within species of the genus Pinus. However, the presence of remnants does not detract from the point that the seed wings are essentially "lost", i.e. can no longer mediate wind dispersal in whitebark pine. Apparently, within the piñon pine complex the situation is similar--small wing remnants adhere to the cone scale when seeds are removed (Shaw, 1914, in Mirov, 1967, op cit)--as is also the case for P. flexilis and the closely related southwestern white pine (P. strobiformis).

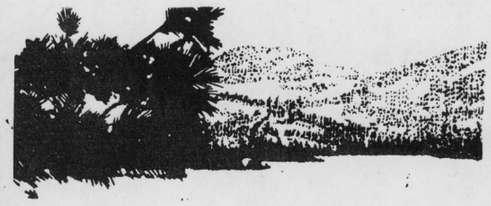
We can only speculate on the steps involved in the evolution of "wingless" seeds, although some evidence comes from the limber pine complex (i.e. P. flexilis, P. strobiformis, and P. ayacahuite), where such evolution appears in progress (pers. comm., R. M. Lanner). Although a variety of factors were probably involved in the evolution of "wingless" pines from ancestral "winged"forms, we can focus on the role of seed-storing birds of the family Corvidae, such as the nutcracker. Nutcrackers and other corvids readily use "winged" as well as "wingless" pine seeds as a food source (Tomback, 1977, The Living Bird, p. 123-161, and references therein). However, nutcrackers and other corvids will shake off or break off seed wings before eating a seed or placing the seed in their throat pouches. Consequently for corvids, harvesting winged seeds is a less efficient process than harvesting wingless seeds (see extraction rate data in Tomback, 1977). This difference in efficiency may be especially important when nutcrackers and other corvids are harvesting large quantities of seed for storage purposes.

If wing adherance were present at a low frequency in an ancestral pine, the spread of this trait might result from discrimination by corvids. In other words, the birds would preferentially harvest and store seeds--and thus disperse seeds--from trees with adhering seed wings, because the efficiency of their foraging would be increased.

On the other hand, reduction of wing size probably resulted from a combination of factors. When corvids became the principal dispersal agents, wing size was no longer maintained by natural selection. As in other kinds of vestigial organs, lack of selection pressure usually results in the hypotrophy of the structure. Energetic considerations are valid here, since biological systems are essentially conservative in a number of respects. Prevention of dispersal by wind in favor of dispersal by corvids was a second possible factor favoring seed wing size reduction. (Benefits of corvid dispersal are considered in a manuscript in preparation, Tomback, 1979.) Seeds which were not blown out of cones stood a better chance of being corvid-dispersed. In addition, nutcrackers may have preferred handling cones and seeds with small seed wing remnants, again perhaps because of efficiency.

Whether or not "winglessness" evolves in a species of pine under selection pressure from corvid-mediated seed dispersal probably depends on a variety of preadaptations in the pine. For example, an important consideration is the potential of the pine for seed germination and seedling survival in the sites used by corvids for seed storage, and whether corvid-mediated dispersal will lead to a greater reproductive success than wind-mediated dispersal. In the Sierra Nevada the Clark's Nutcracker is an important factor in the subalpine ecosystem as a consequence of its relationship with P. albicaulis and P. flexilis. I look forward to continuing my work on the interactions of the Clark's Nutcracker and these pines.

--Diana F. Tomback



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265 Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

Volume III
Supplement No. 3
Autumn, 1979
4 issues per year

WAUCOBA: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127 ft.

Notes on Inyo County Grasses - 7
The Fescue Tribe (Festuceae) in the Inyo Sierra
Miscellaneous Genera
By John Thomas Howell

Dactylis glomerata L. Orchard Grass. Frequently cultivated in pastures; escaping to roadsides and waste ground; Big Pine Lake Trail at 9700 ft.

Distichlis spicata (L.) Greene. Salt Grass. To be expected about mineral springs and seepages but only seen from Owens Valley; occurring in Tulare Co. at Kennedy and Lamont meadows. Highly variable but named varieties are not given here since they are poorly defined.

Eragrostis. Love Grass. No species has been seen from Sierra slopes but E. Orcuttiana Vasey occurs in Owens Valley and has been collected at Kennedy Meadows, Tulare Co.

Glyceria. Manna Grass. The montane form of G. pauciflora Presl occurs in wet meadows and along streams and strands. This grass is subalpine in the Inyo Sierra, as at Big Pine Lakes at 11,000 ft. It is treated as Puccinellia by Munz and as Torreyochloa by others. Here we follow Hitchcock and Chase in calling it Glyceria.

Leucopoa Kingii (Wats.) W. A. Weber. This grass of dry rocky flats and slopes has more recently been called Hesperochloa Kingii (Wats.) Rydb. In Inyo Sierra it is found at high elevations, 10,000 to 12,000 ft. (Big Pine Lakes to Bishop Creek), but northward it may occur as low as 5000 ft.

Melica. Honey Grass.

M. bulbosa Geyer. Widespread but not common in the Sierra, growing on rocky slopes and meadow borders (as in the Rock Creek Lake Basin at 10,500 ft.).

M. imperfecta Trinius. Common in some parts of California but rare on the Inyo side of the Sierra (Nine-Mile Canyon at 6000 ft.).

M. stricta Bolander. An attractive grass of rocky places, widespread from Alabama Hills (4800 ft.) to Kearsarge Pass (11,900 ft.).

Phragmites australis (Cavanilles) Trinius. Common Reed; Carrizo Grass. Forming grassy thickets on Lone Pine Creek in the Alabama Hills and probably elsewhere along the lower courses of Inyo Sierra streams. "Common reed" is not common but it ranges northward on the eastern Sierra slope to Lassen Co.

Puccinellia. Both P. Lemmonii (Vasey) Scribner and P. Nuttalliana (Schultes) Hitchcock may be expected. The two are known in Mono Co., the first in Long Valley, the second on the strand of Mono Lake.

Tridens. Although this genus has not been reported from Sierran slopes in Inyo Co. it should be watched for. To the north of Inyo Co. there are early-day records of T. muticus (Torr.) Nash and T. pilosus (Buckley) Hitchcock, both grasses of dry rocky slopes.

Notes on Inyo County Grasses - 8
Grasses in miscellaneous tribes in the Inyo Sierra
(or to be expected)
By John Thomas Howell

1. Canary Grass Tribe

Phalaris arundinacea L. Reed Canary Grass. To be expected in wet ground on lower Sierran slopes.

2. Grama Grass Tribe

Beckmannia syzigachne (Steudel) Fernald. Slough Grass. To be expected in wet ground.

Chloris. An introduced species of finger grass should be found.

Cynodon dactylon (L.) Persoon. Bermuda grass must be so common that it is ignored! The only Inyo County collections seen are from the Panamint Mts. and Death Valley, none from Owens Valley or Sierra. Introduced.

Leptochloa fascicularis (Lamarck) Gray. Sprangletop. This widespread American grass of low pastures and roadsides has been collected in Owens Valley but is not known from Sierran slopes.

Spartina gracilis Trinius. Alkali Cord Grass. This widespread grass was collected in 1891 by members of the Death Valley Expedition at "Haway Meadows" (Haiwee). More recently it has been collected on alkaline flats in Long Valley, Mono Co.

3. Millet or Panicum Tribe

Digitaria sanguinalis (L.) Scopoli. Crab Grass. Not seen from Sierra slope but undoubtedly occurring there as a roadside or pasture weed since it grows in Owens Valley. Introduced from the Old World.

Echinochloa crus-galli (L.) Beauvois. Barnyard Grass. Like the preceding, this common weed of moist soil in disturbed and cultivated areas grows in Owens Valley but it has not been collected on the Sierra slope.

Echinochloa muricata (Beauvois) Fernald var. microstachya Wiegand. Known in the Inyo Sierra from a robust collection made in a "broad marshy stream valley, Rock Creek, 10 miles north of Bishop," Sept. 2, 1949, Nobs & Smith 1780. The area concerned probably lies along the old highway to Sherwin Hill northwest of Bishop.

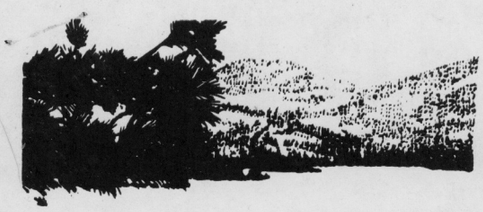
Paspalum paspalodes (Michaux) Scribner. Knot Grass. This is the widespread grass we have been calling P. distichum L. According to F. R. Fosberg (Taxon 26:201. 1977) the plant of the United States is not the same as the plant from Jamaica that was described by Linnaeus. Knot grass has been seen only from the edge of the Sierra in Owens Valley in the vicinity of Bishop. It is to be expected along the foothills in marshy meadows, along streams, and in roadside ditches.

No Inyo-Sierra or Owens Valley records have been seen for grasses in the genera Cenchrus (sand bur grass) or Panicum (panic grass) but widespread weedy species of these groups probably occur there. They should be watched for and reported.

4. Sorghum Tribe

Sorghum halapense (L.) Persoon. Johnson Grass. Surely somewhere in Inyo Co. this common grass of wet pastures, canal banks, and low roadsides must grow weedily! No Inyo Co. specimen of this Old World grass has been seen.

EDITOR'S NOTE: John Thomas Howell writes to me that with this SUPPLEMENT he has completed his treatment of the Sierran GRASSES east of the crest. Congratulations to him for a job well done.



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Volume IV
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 Winter, 1980
Subscription: Four 9" long stamped self-addressed envelopes 4 issues per year
or a membership($5.00) in Bishop Museum

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

Some Trees of Owens Valley and Vicinity with Notes on Their Histories and Present Distribution

Prepared by: Enid A. Larson

Reference for place of origin: SEE.--Bailey's Cyclopedia of Horticulture (Bishop Library)

In any discussion of trees now present east of the Sierran Crest, distinction must be made between those species that have been INTRODUCED and those that are NATIVE. This issue of Waucoba News will consider some of the introduced species.

Between 1860's and the 1900's early settlers to Owens Valley brought with them trees that were native to the eastern part of the United States from which they had moved westward. Among these introductions were the BLACK LOCUST and the OSAGE ORANGE, both of these came with immigrants from Missouri. Here in Owens Valley the locust was planted primarily for a source of long-lasting fenceposts and for firewood in homes. When living segments of small trunks were used as posts, especially along the banks of irrigating ditches, often they rooted and grew. Housewives preferred locust wood for its long, slow, steady burning, especially for the baking of homemade bread. This tree is a rapid grower when planted near an uninterrupted water source; it provides excellent firewood and should be so considered today in preference to depleting the limited pinyon forest.

The Osage Orange was planted primarily in Owens Valley as a living fence thicket and windbreak. Its plantings formed dense thickets along property lines but these are all gone. Ina Piper, Bishop, tells me that she knows of only one Osage Orange now growing in Owens Valley. In Oklahoma, I understand that this tree is called the "bow dart tree" since its wood is straight grained and in former times was used by Native Americans for arrows.

The TREE OF HEAVEN, Ailanthus, is a native of China; supposedly it was introduced into California by the Chinese who were employed to work on the early transcontinental railroad project, completed at Promintory Point, Utah, where the east and west sections met. Its most unpleasant odor, its brittle wood, and its ability to rapidly reproduce make this tree somewhat of a nusiance in urban centers. I have no knowledge of how or when this species became established in Owens Valley.

The SALT CEDAR or TAMARISK, tolerant of arid climates and alkali soils, is a native of Africa. In Owens Valley it is in direct competition for subsurface water with our native vegetation. It has finely divided reddish-pink foliage. As a rapid invader in Owens Valley it must not be encouraged nor should it be deliberately planted. It is a common tree in Searles Valley where it was also introduced.

The POPLARS: In earlier days, on the ranches in Owens Valley, the CAROLINA POPLAR , a tree with spreading branches, rounded head, was planted to provide shade; also, it was a rapid grower. It was the most frequently planted tree at and about ranch houses. Few of these trees now remain in our Valley since they require an uninterrupted water source. One of these trees standing at the north end of the Bishop Golf Course was said to be "the most photographed tree in the United States"--it was especially photogenic in its autumnal foliage. Two years ago a major limb broke and fell; this year its dead trunk was cut near ground level--only the stump now stands. A line of these trees, 1/2 mile long, and approximately 100 years of age was cut last year from the south side of Schober Lane. A few still stand in the campground at the junction of Highway 395 and Schober Lane.

The tall, slender LOMBARDY POPLAR was planted in early days along fence lines, presumably as a windbreak. This tree is a native of France. One such fence line, now more than 75 years old, still grows along Sunland Avenue about 3/4 mile south of West Line Street, Bishop.

Today, the ARIZONA CYPRESS, an evergreen, has been introduced as a windbreak tree in Owens Valley. Urban plantings include: elms, maples, weeping willow, black walnut and liquidamber--all native to the eastern parts of the United States. The Liquidamber is extensively plants in California as a street tree since its roots tend to be straight and deep.

Trees native to California have been introduced into Owens Valley but all need the care and protection of property owners: THE BIG TREE and the INCENSE CEDAR of the western slope of the Sierra Nevada. The Sycamore, in its native habitat, is a streamside tree but in Owens Valley it occurs as a shade tree on urban lots. Its large leaves are leathery and slow to decay. Its dark tan-colored fruiting bodies hang like ping-pong balls. Sycamores, willow and black walnuts are trees of ancient origin; their fossils date back more than 90 million years. Fossil Sycamore leaves have been found in deposits in the Arctic and in Greenland. (Sudworth, 1966, Dover edition).

Joe Rossi, Bishop, about 1910, made an extensive planting of Arborvitae (Thuja) at the south end of Sunland Ave. near the east bank of the Owens River Canal 2 miles south of Schober Lane but none of these shrubs are still living.

THE MONO LAKE 3rd ANNUAL CHRISTMAS BIRD COUNT (1980)

A total of 94 species of birds were recorded

Five additional species were added to the 1978,1979 listings: Redwing Blackbird, Tree Sparrow, Pine Siskin, American Goldfinch, Golden-crowned Sparrow

Showed an increase in numbers of individuals for 6 species

Showed a marked decrease in numbers for 12 species.

THE MONO LAKE COMMITTEE, P.O. Box 29, LeeVining, Ca. has a complete report

D. Winkler kindly supplied a listing for 1980.

--Enid A. Larson

AN ANOTATED CHECKLIST OF DEEP SPRINGS VALLEY BIRDS

Dave Weiss, Deep Springs College, via Dyer, NV 89010, sent in a list of birds noted between June 28, 1979 and December 25, 1979. This list totals 137 species. In early October, "flocks of Lazuli Buntings gathered just before leaving". A Green-tailed Towhee was noted in early September. The Tree Swallow is listed as "an uncommon summer resident that departs by mid September. Phainopepla was an uncommon September migrant. Ladder-backed Woodpecker: 6 individuals passed through between August 31 and November 15. One Downy Woodpecker was present on December 22-23.

Please contact Dave Weiss at above address if you have information on Deep Springs bird-life.

Editor's Note: This list has been sent to Tom Heindel, now in LaPaz Bolivia, who is preparing a manuscript on the birds of Inyo-Mono counties.

A REPORT OF BIRDING IN THE AMAZON BY HEINDELS

"We spent 6 weeks running around the Amazon basin. Bird wise it was exciting. We saw a COTINGA, called a Scimitar-winged Piha which has been known only from a few specimens and the only person to ever see the bird alive collected them here in 1935. He, Carriker, died about 12 years ago, so until now one one living had seen them bird until we did. Three of us saw it, Dr. Van Remsen, our friend from LSU, Jo and I. What a thrill! "--T. Heindel

SOME NATURE NOTES FROM THE LONE PINE AREA

Jul 20 1979 -- Nuttall's Woodpecker, Dendrocopos nuttallii, in willows 1 mile east of Lone Pine.

Aug 17 Aug 18 -- Turkey Vulture, Cathartes aura, over Lone Pine.

Oct 6 -- Cedar Waxwings, Bombycilla cedrorum, feeding on Forestiera fruit in Alabama Hills.

Oct 8 -- About 50 White Pelicans, Pelecanus erythrorhynchos, milling about north of Lone Pine.

Oct 9 -- Black-throated Gray Warbler, Dendroica nigrescens, in Ala. Hills.

Oct 17 -- Canyon Wren, Catherpes mexicanus, in Alabama Hills.

Oct 18 -- Barn Owl, Tyto alba, road kill 2 miles south of Lone Pine.
150+ White Pelicans flying south east of Lone Pine.

Dec 18 -- Common Snipe, Capella gallinego, in Alabama Hills.

Jan 7 1980 -- 2 Black-throated Sparrows, Amphispiza bilineata, in Ala. Hills.

--Vince Yoder

John D. Pinto, Entomologist, Univ. Calif. Riverside, has recently published his study of populations of a strikingly colored Meloid Beetle. In his revision of the genus. Owens Valley and Posey Flat are listed as "type location" for Eupompha elegans perpulchra (Horn). SEE: Trans. Amer. Ento. Soc. Vol. 105:391-459, Dec. 5, 1979, for his "A Classification of the Genus Eupompha".

Within its geographic range of Arizona, California, and Nevada the color patterns vary widely from all black to two phases with large patches of orange on the wing covers. Owens Valley is one of the few places where the totally black form occurs, and ONLY in the vicinity of Owens Lake can all three color types be found together.

--Abstract by Enid A. Larson

MONARCH BUTTERFLIES

A previous issue of WAUCOBA NEWS reported observation of numerous monarch butterflies aggregating at 3 sites in Saline Valley, Inyo Co., Calif., in Nov-Dec 1977. Much smaller numbers were seen there during the next 2 winters. Numbers counted to date are as follows:

		Hunter Canyon	McElvoy Canyon	Willow Creek
1977	Nov. 24	---	300	100
	Dec. 18	---	145	80
	Dec. 31	300	70	50
1978	Dec. 22	10	0	---
1979	Nov. 23	120	145	5

This season, as in 1977, most of the insects were gathered into groups, 5 to 15 feet above the ground on shrubs overhanging moving water. One cluster of less than 15 cu. ft. contained about 110 individuals.

During the Autumn of 1978 undamaged wings from at least 4 monarchs and 1 tiger swallowtail, lacking all trace of body parts, were found on the ground beneath the flowers of a lilac bush in a Big Pine garden. When birds eat butterflies they usually leave tattered wings, with visible beak marks, scattered over a wide area. A search of the lilac bush disclosed a 2½ inch praying mantis, of a species common in the Owens Valley, perched in a position which placed at least 6 sq. in., of flower surfaces within reach of its forelegs. Similar wings from two Monarchs were found directly below another Mantis among the flowers of another flowering shrub.

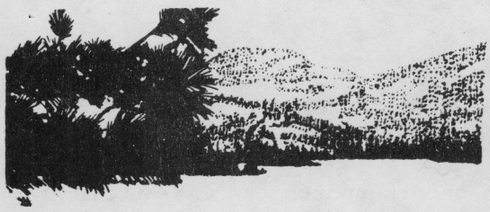
--D. Giuliani, Big Pine

RESEARCH IN PROGRESS

Eureka Valley Sand Dunes:
Bruce Pavlik has completed his study on the water stress of plants on the dunes. This report has been filed with the Bureau of Land Managment, Riverside, Calif.

Mono Lake Basin:
Evan Sugden is presenting a course on Insect Ecology at Lee Vining, June 19-Julyll 1980;he is studying the grazing habits of domestic bees as well.

Stewart Valley, Nevada:
A paleoecological publication By Drs. H. Schorn and F. Scudder U.C.Berkeley & Cal. State Hayward is under consideration.



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Volume IV
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 Spring - 1980
Subscription: Four 9" long stamped self-addressed envelopes 4 issues per year
or a membership ($5.00) in Bishop Museum

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

Looking westward across Eureka Valley to the crest of the INYO MOUNTAINS:
On the left, WAUCOBA PEAK with snow, and SQUAW PEAK on the right.
Photo by Enid A. Larson, 1980

THE INYO-WHITE MOUNTAINS

On the eastern side of most of Owens Valley is a massive block 110 miles long, with one or two of its highest peaks closely approaching the maximum elevations in the Sierra Nevada. White Mountain Peak stands 14,242 feet above sea level. The range is a continuous mass though there is a depression in the central part culminating in Westgaard Pass (el. 7,276 ft) which lies east of Big Pine. It is generally known as the White Mountains, though the southern end may still be referred to as the Inyo Mountains. Geologists speak of Westgaard as an "arbitrary division between the northern and southern portions of this Range." Botanists who have collected plants in this Range find that many of the species end their north-south geographic distributions in the Westgaard area; thus, ecologically speaking there is scientific evidence to support the division of the Range into two distinct regions--the Whites and the Inyos--as residents of Owens Valley long have done.

References for further reading: Available at libraries or through interlibrary loan service: EVOLUTION OF THE CALIFORNIA LANDSCAPE. Bull. 158, Dec. 1952, Div. Mines, Dept. Nat. Res. State of California, authored by Norman E. A. Hinds. This volume gives a very readable account of the geologic structure of Owens Valley. The structure and geologic history of the southern portion of the Inyos (area around Cerro Gordo) is given in GEOLOGY OF SOUTHERN CALIFORNIA. Bull. 170, Vol. 1. 1954. Division of Mines, State of California.

RELICT POPULATIONS

A long time ago, millions of years past, before the mountains of Inyo attained their height, not only the land surface was unlike its present form but climate was remarkably different. With successive uplifts in the Sierra Nevada there were profound effects upon the rainfall patterns in the eastern California-Great Basin-Mojave complex.

The fossil records indicate what is now the arid Mojave Desert once supported an OAK-WOODLAND with moist summers and abundant rainfall. With changes in elevation of the mountains, climate changed from wet-moist summers to a pattern of aridity and moisture that fell as snow at the higher elevations in winter months. In California's Coast Ranges today where seasonal precipitation averages about 22-25 in., the OAK WOODLAND association still flourishes.

Along the eastern base of the Sierra Nevada in northern Kern County and in Inyo County, we find isolated populations of trees growing that strongly suggest their more ancient histories. These are now considered "relicts" of the past--antiques, so to speak. It is suspected that once an OAK-WOODLAND association extended from the Mojave northward as far as Big Pine and that these "relicts" are representative of that corridor. Trees living in isolation along some of the steep canyons whose streams now flow from the Sierra Nevada are species of oaks, pines, poplars, ash, birch and alder. The following list will be added to and expanded as space in WAUCOBA NEWS permits:

(1) The Black Oak (*Quercus Kelloggii*). This oak is now known growing at a high elevation along Ash Creek, along Independence Creek from about 6500 ft to 8500 ft, along Oak Creek, Division Creek; along Big Pine Creek at 4500 ft only 4 of these trees grow.

(2) The California Interior Live Oak (*Quercus Wislizenii)* is limited in Owens Valley to the stand along Oak Creek between about 6200 ft and Highway 395. It occurs on both the North and South Forks of Oak Creek. In association with this oak, infrequently in the autumn and winter may be seen the California Acorn Woodpecker (near the Mt. Whitney Fish Hatchery). The Western Gray Squirrel, in very small numbers and completely protected in this area from hunting, may sometimes be found.

(3) The Hackberry (*Celtis Douglasii*). Three trees grew along Independence Creek and were referred to by Mary Austin in THE LAND OF LITTLE RAIN. With the changing of the creek bed in Independence, one of the trees still grows in a residential back yard. Until Dr. McMinn, Mills College, located a few of these trees in a canyon of Eureka Valley, east of Deep Springs College, Independence Creek was thought to be the northernmost limits for this species. Dr. John Mawby, Deep Springs, and Derham Giuliani visited this stand and found both young and old trees doing very well.

(4) The Yellow Pine (*Pinus ponderosa*). This pine, common on the western slopes of the Sierra Nevada, had been thought to be absent on the eastern slope but Dr. Haller (Univ. Calif. Santa Barbara) identified this species growing along the lower reaches of Rock Creek in Mono County. Derham Giuliani and I have located a few of these trees along Big Pine Creek (lower elevation) and along Independence Creek. Intermingled with this species may be found hybrids between *ponderosa* and *Jeffreyi*.

(5) The Digger Pine (*Pinus Sabiniana*). A small group of trees of this pine, native in California to the foothills on the western slope, grows at the highest elevation in its range in the Nine-Mile Canyon - Chimney Peak area on our eastern slope. That this species of pine grows in Inyo County is astonishing.

(6) The Ash (*Fraxinus velutina*). One isolated group of trees grows along Ash Creek near Owens Lake and here it is at the northern extremity of its range. This tree occurs also in the Last Chance Range, growing in a steep rocky canyon east of the north end of Eureka Dunes.

These isolated populations, growing on slopes east of the Sierra Nevada, are deserving of man's careful protection. Both the Inyo Forestry and Bureau of Land Management programs must be monitored to insure protection for these relict populations.

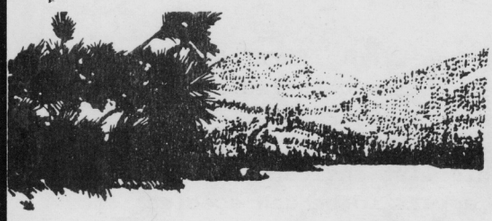
VALUES OF RELICT POPULATIONS

The values to man from study of these relict populations are many and varied and their listing depends on the field of study. Ecologists, biogeographers and taxonomic botanists recognize a wide range of values. The following were gleaned from a concensus of students of taxonomy and kindly supplied for this issue of WAUCOBA NEWS:

The relicts are of interest to geographers and others concerned with problems and explanations of plant distribution in western North America. The relicts are useful in charting past vegetation and climatic changes. They are also important to those studying plant evolution, the rates of evolutionary change, and for the knowledge of the variability of the germ plasm (genes) in ancient lines. Is there less variability in the genes of relicts that prevent them from occupying more habitats over a wider area? How do they compare in this respect with plants believed to be in an active state of evolution or with those able to occupy broader areas?

Taxonomists are interested in the relationships of the relicts to other species. These for comparative studies need <u>living trees</u> in order to use comparisons of their chemistry as well as other aspects. The trees are needed also as a pollen or seed source for hybridization and genetic studies.

--This synthesis was composed by Enid A. Larson, editor.



Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Volume IV
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership($5.00) in Bishop Museum
Summer 1980
4 issues per year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

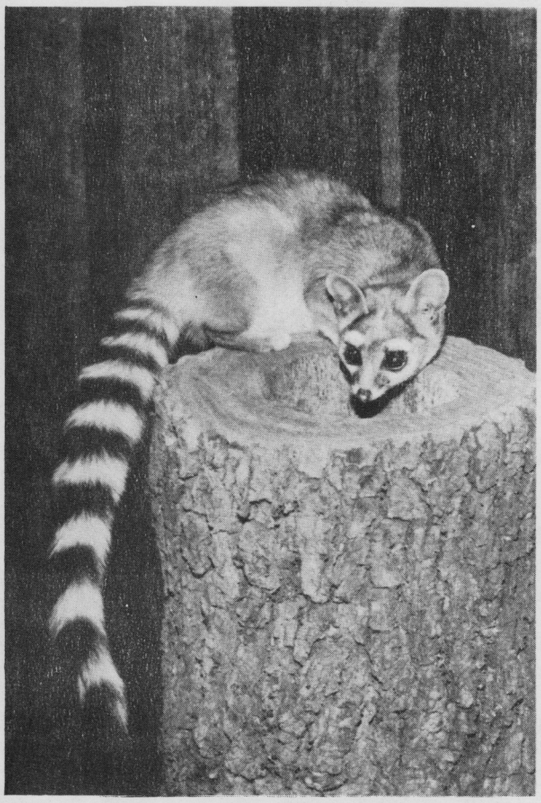


PHOTO by D. Giuliani
1980
Zeiss Contiflex, Kodachrome

THE RING-TAILED CAT (*Bassariscus astutus)* sometimes called the Miner's Cat, is a species of mammal that is fully protected in California. It is a nocturnal animal, seldom seen in the daytime, but becomes active at dusk. As a resident near cabins it is highly effective in controlling populations of rats and mice. It feeds on fruit and insects; sometimes on fresh roadkills of lizards.

This is a remarkably intelligent species. It bears its young in the Spring and produces from 1 to 4 in a litter. The mother provides her young with a great variety of opportunities for early exploration, especially in climbing. They prefer a habitat along streamsides or near free water. Their fur is dense and tawney colored. Their large ears indicate a strongly developed sense of hearing. D. Giuliani has been studying a family in the wild in the Inyo Mountains for the past 2 years.

RELICTUAL POPULATIONS

(con't)

The last issue of WAUCOBA NEWS introduced the importance of maintaining isolated relictual populations that are to be found living in the eastern California-Nevada area. Relictual populations are the living fragments of species once more widely established but due to environmental changes in past geological times have been reduced to pockets where continuous survival has been possible. A few species of trees exist as relictual populations in Owens Valley, in the Inyo-White mountains and in the Sierra Nevada--especially beside streams and springs. These relicts are not limited to vegetative species only but include insects, especially beetles, a few mammals, reptiles and fishes. Of the fishes, the pup-fish is a well-known example, thanks to the efforts of Phil Pister, California Fish and Game, Bishop office.

Derham Giuliani is devoting many hours in the field surveying isolated populations of beetles and their distribution in the basins and sand dunes in the east-of-the-Sierran-crest.

Of the mammals, the *Aplodontia* or Mountain Beaver, the most primitive rodent known in North America, exists here in a few isolated pockets in Mono County. North of Division Creek in Inyo County, a species of chipmunk (Merriam's chipmunk) lives at higher elevations, apparently in isolation along the eastern side of the Sierra Nevada and maintains itself in an environment that now no longer supports oak trees, one of the normal components of its usual habitat. The Western Gray Squirrel, living along Oak Creek, west of Independence, provides another example of a small relict population that appears to have no gene flow with others of its species on the western slope of the Sierra nor with those living farther south in Inyo County.

Survey of relicts will be continued in WAUCOBA NEWS as space permits.

--Enid A. Larson

The desert Iguana in Eureka Valley may be an example of a relictual population of lizard. Additional study of the elevation range of this species is needed to determine if this basin population is actually in isolation with no gene flow.

WHITE MOUNTAINS

A range extension for LABRADOR TEA (*Ledum glandulosum)*; previously known from the Sweetwater Mts (Mono County), the Sierra Nevada from Tulare to Modoc counties; also in Trinity Mts.

Derham Giuliani, field entomologist, spends much of his time out of doors. From a July hike in the White Mts., he collected a sprig of a shrub, growing in a wet seep in Milner Cyn which drains to the west from the slope of White Mt. Peak. With the aid of keys in Munz and in Jepson's Flora, I was reasonably sure of my identification but since Mitchell & Lloyd's Flora of the White Mts. failed to give record of this shrub, I sent the specimen to the California Academy of Sciences for confirmation. J. T. Howell, Botanist, responded as follows:

"Yes, indeed--the plant is *Ledum glandulosum* and apparently a remarkable record. Not only is it new to the White Mts. but it added a new family to the known flora of that range. (Isn't it strange that some member of the Heather Family hasn't been found somewhere in the White Mts.?) Good work, D.G." --J. T. Howell

In other years I had collected this shrub on GLASS MOUNTAIN and up until now had thought that the clump of this species growing in isolation at Sawmill Meadow at the edge of a bog, 9300 ft el was the easterly outlier. That the Sierran flora has representative species in the White Mts. has been known from the presence of the Yellow Pine *(Pinus ponderosa)* growing in Lone Tree Cyn and from a group of Lodgepole pines on the eastern slope of the White Mts on Cabin Creek.

This new record for *Ledum* furthers our knowledge and adds evidence for postulating the presence of a floral corridor once having extended eastward from the Sierra Nevada, probably in glacial times, but now no longer is in a continuous band.

D.G. also reports that on the slope of Milner Cyn, 9000 ft el, Limber Pine, Bristlecone, Lodgepole and pinyon grow together in an intermixed association.--Enid A. Larson

‡‡‡‡‡‡‡‡‡‡‡

QUOTABLE QUOTES

From the NORTHERN NEVADA NATIVE PLANT SOCIETY Newsletter, Vol. 6, No. 7, Sept. 1980:

Alice Q. Howard: "The Great Basin is the most biologically diverse and least understood area in the United States..."

G. Ledyard Stebbins, Davis, Ca. "the greater the genetic variability, the more capable a species is of adapting to any change in its environment, and therefore less likely to go extinct."

‡‡‡‡‡‡‡‡‡‡‡

ALABAMA HILLS

Vince Yoder reports locating an ASH (*Fraxinus velutina* Torr.) growing in the Alabama Hills north of the isolated stand along Ash Creek,

‡‡‡‡‡‡‡‡‡‡‡

The ASH in the Last Chance Range is a northern outlier of the Arizona Ash (*F. anomala* Torr.)

I N S E C T S

Dr. Fred Andrews has kindly furnished the following information gathered from the collections made in EUREKA VALLEY. Not all the specimens have been studied in detail but this list indicates the large numbers that appear to be new species and are unique for the sand dunes.

Eureka Valley Coleoptera

Recent studies of the Eureka Valley dunes area has shown a rich and interesting assemblage of Coleoptera species. The study was basically an inventory of ground inhabiting arthropods trapped in anti-freeze filled pit-fall traps. Three transects composed of 25 stations and 75 traps were run away from and perpendicular to the dune periphery. Two transects were one mile in length and the other 1/2 mile. The traps were collected monthly for 1 year.

Fifteen thousand beetles representing 153 species were collected. The data showed that many of the species were restricted to particular substrates, such as sand, dry lake bed, alluvial fan, etc.

Twelve species are tentatively judged to be new to science. Several beetle taxa are poorly studied and specific determinations were impossible. There may be additional undescribed species in these groups.

Undescribed Coleoptera from Eureka Valley Transect

Cryphophagidae		
Cryptophagus, new species	(0)	(+)
Curculionidae		
Cleonus, new species	(D)	(-)
Minyomerus, new species	(O)	(+)
Elateridae		
Cardiophorus, new species	(D)	(+)
Horistonotus, new species	(D)	(+)
Histeridae		
Eremosaprinus, new species	(D-O)	(+)
Ptinidae		
Ptinus, new species	(O)	(-)
Scydmaenidae		
Papusus, new species	(O)	(+)
Tenebionidae		
Batuliodes, new species	(O)	(+)
Craniotini, new genus, new species	(O)	(+)
Helops, new species	(O)	(+)
Trimytini, new genus, new species	(D)	(+)

(O) off-dune associate
(D) dune associate
(+) known only from Eureka Valley dune area
(-) known from outside Eureka Valley area

--Fred Andrews, Sacramento, California

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Volume IV
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 AUTUMN 1980
Subscription: Four 9" long stamped self-addressed envelopes 4 issues per year
or a membership($5.00) in Bishop Museum

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

Big Pine Canyon: -- The Middle Palisade Glacier Basin
Photo: Zeiss Contiflex, 1980, by Enid A. Larson

RELICTUAL POPULATIONS cont'd

THE INYO SALAMANDER (*Batrachoseps campi*) is now known to live in isolated populations in the Inyo Mts. Although no study has been made of its habits and its ways of meeting its biological needs, it apparently enters crevices in rock formations during the hot, dry months of the year. This species, so far as is known, is endemic to Inyo County. It is most unusual to find an animal with thin skin, that is completely dependent on high moisture content for its life, living in a desert range where extreme conditions of humidity prevail. Salamanders are of an ancient group of vertebrates whose fossil finds are dated to Permian times (400 million years ago). This group has been considered among the earliest of backboned animals to have left the water and successfully adapted to life on land.

THE INYO BROWN TOWHEE (*Pipilo fuscus eremophulus*) is a desert inhabiting bird confined to the southern Argus Range of Inyo County. It represents an isolated relict population of a species formerly widespread in the southwest. These birds are wary and difficult to census in the rugged desert canyons. The entire population is confined to a circle of 11-mile diameter centered at Benko Canyon. Most of the area is within the Naval Weapons Center, China Lake. This species requires a minimum of 4000 ft^2 of riparian vegetation dominated by Arroyo Willow. Both willow and desert olive are used for shelter and nesting. In an area where the vegetation is linearly limited, the birds require 450 ft of continuous riparian growth. Foraging is in open desert hillsides; standing water is not required. Ref: Cord & Jehl, Jr. Hubbs/Sea World Res. Inst., San Diego. Western Birds 10, 131-156, 1979.

****

The desert mallow has dropped its last petals
and autumn withers the slopes of Inyo

Penstemon in the Inyo-Sierra
By John Thomas Howell

P. breviflorus Lindley. In pinyon belt on Olancha Pass Trail, up to 7000 ft.; Falls Creek at 5400 ft.--Keckiella breviflora (Lindley) Straw.

P. Bridgesii Gray. Dry rocky places, common and showy, 6500-10,000 ft.

P. caesius Gray. Dry gravelly flats and slopes in open and in Jeffrey pine forest, 8000-9500 ft., Olancha Pass Trail, Army Pass Trail, etc.

P. confusus Jones var. patens Jones. Canyonsides from Lone Pine Creek to Bishop Creek, and north into southern Mono Co., 6200-9100 ft. Common in the White and Inyo mountains. The type was collected by Marcus Jones west of Lone Pine at 7000 ft. in 1897.

P. Davidsonii Greene. Alpine slopes and flats, 10,500-12,200 ft. One of our most beautiful flowers.--P. Menziesii Hooker var. Davidsonii (Greene) Piper.

P. Davidsonii X P. Newberryi. This hybrid may be expected where the two parent species grow near each other. An Inyo Co. record is from Rock Creek Lake Basin at 11,300 ft. (Howell in 1946).

P. floridus T. S. Brandegee. Occasional from Lone Pine to Bishop on slopes from Owens Valley up to 8000 ft.; more common in the Inyo and White mountains. The type of P. Austinii Eastwood was collected by Stafford Wallace Austin on Oak Creek in 1899. It was considered a subspecies of P. floridus by Keck.

P. Grinnellii Eastwood ssp. scrophularioides (Jones) Munz. Apparently local on the Inyo-Sierran slope west of Olancha: Falls Creek at 5400 ft., Alexander & Kellogg in 1942; Olancha Pass Trail in pinyon belt, 6500-8000 ft., Howell in 1950.

P. heterodoxus Gray. Widespread and rather common in wet and dry meadows, 10,000-12,000 ft. The plant from Tulare and Kern cos. that has been called ssp. cephalophorus (Greene) Keck is probably not distinct. The type of a synonym, P. alsinoides Greene, was collected in Big Cottonwood Meadows.

P. incertus T.S. Brandegee. Open gravelly or rocky slopes northward as far as the Alabama Hills and adjacent Sierran slopes, 4600-7000 ft., the northern distributional limit. Common and showy in the Walker Pass region in Kern Co.

P. laetus Gray ssp. Roezlii (Regel) Keck. Rare on east slope as far south as Mono and Inyo cos. (Bishop Creek, 9000 ft., R.S. Waglum in 1941).

P. monoensis Heller. Perhaps this species does not grow on the Sierran side of northern Owens Valley but certainly it occurs not far to the east along the White Mts. However, the type collection of P. divergens Jones, a synonym, was made by Jones at "Bishop, Owens Valley, ... 5000 feet altitude." This could have been in the Sierra.

P. Newberryi Gray. In rocky places, beautiful and showy, 9300-11,000 ft., south to Kearsarge Pass.

P. papillatus J.T. Howell. A localized Sierran endemic ranging from Hilton Creek, Mono Co., to Taboose Creek, Inyo Co., 7000 to 9500 ft.

P. procerus Douglas ssp. formosus (Nelson) Keck. Rocky flats and summits, reaching a southern distributional limit in Rock Creek Lake Basin at 10,300 ft., Howell in 1946.

P. Rothrockii Gray. Common shrub on rocky slopes, 6500-10,000 ft.--Keckiella Rothrockii (Gray) Straw.

P. Rydbergii Nelson. Occasional in moist meadows up to 10,000 ft. For many years the Sierran plant has been called P. oreocharis Greene. Heller described the plant growing in "McGee's meadows in the foothills west of Bishop" as P. recurvatus. Typical P. Rydbergii is a plant of the Rocky Mountains; the western plant has been called P. Rydbergii var. varians (Nelson) Cronquist.

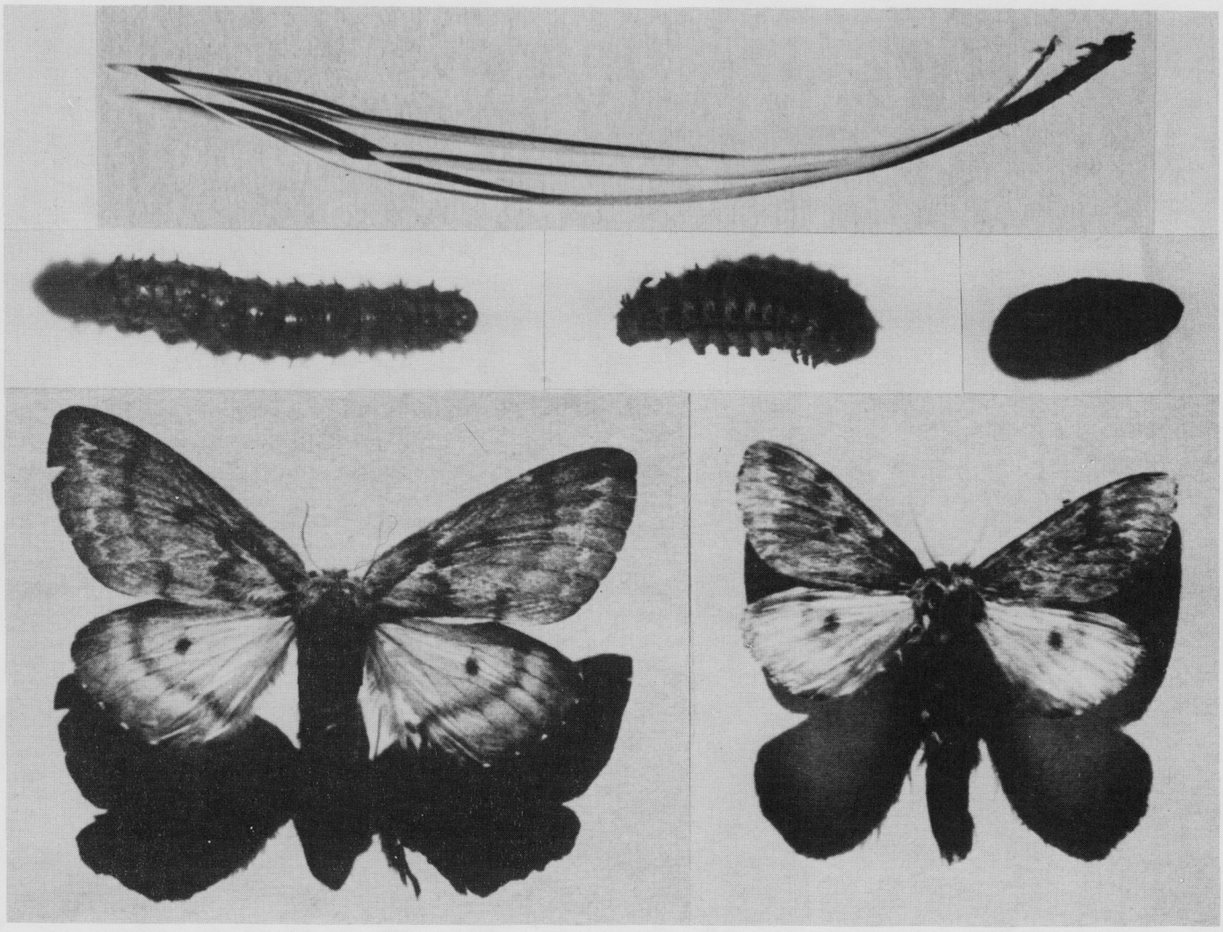
P. speciosus Douglas ssp. Kennedyi (Nelson) Keck. Open slopes and ridges, common in Mono Co. extending south to northern Inyo Co. (Rock Creek Lake Basin, 10,300 ft.; above South Lake, 11,500 ft.).

P. speciosus var. pilifer (Heller) Munz & Johnston. Little Cottonwood Creek, 9800 ft.; Summit Creek, 9000 ft. This is the variety in the southern Sierra, ranging south to the mountains of southern California. It is especially showy and common on the Kern Plateau. It has been treated as a synonym of ssp. speciosus but in that the staminode is glabrous or sparsely hairy

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Vol. V
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 Winter 1981
Subscription: Four 9" long stamped self-addressed envelopes 4 issues per year
or a membership ($5.00) in Bishop Museum

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127



PANDORA MOTH

Top Row: *Jeffrey Pine Needle:* Middle Row: (left to right) *Larva,* fully grown; *Larva* ready to pupate after shedding its skin; *Pupa*; Lower Row: *Adult female and male*. All natural size.

Jack Edell, Bishop, became interested in these moths when a large swarm of caterpillars appeared in the Inyo Forest, near Crestview, June, 1979. The succession of their life stages is illustrated above in photos taken from his collection of preserved materials he prepared from specimens he reared in a terrarium. The caterpillars are black and orange-yellow, their rings of black bristles are separated by smooth yellow-orange bands. Three days after he collected live caterpillars all were buried beneath 2 inches of pumice sand covered with dry pine needles in the terrarium. In the forest, he dug and found cocoons about 2 inches below the surface. He watched the caterpillars dig into the soil rear-end first.

In August, 1979, new needles were emerging from the terminal buds of the then defoliated Jeffrey pines and all caterpillars in the area were underground.

On July 4, 1980, two adult males emerged as moths in his terrarium; one lived for 9 days. In the forest, the first live adult moths appeared on July 15th. On July 9, 1980, adult moths were laying bright green-yellow eggs, each about the size of a grain of rice. Many were laid along pine needles. By mid-August, 1980, no live moths, no hatchling caterpillars were found. By Sept. 2, 1980, many hatchlings (about 1/10 inch) were seen. Two days later hatchling caterpillars were eating pine needles in the forest and in the terrarium; some of the hatchlings from a single clutch of eggs marched single-file along a pine needle, moving upward "like a moving black thread". By Sept. 30, 1980, hatchlings were more than 1/2 inch long.

Robins ate both eggs and hatchlings; golden-mantled squirrels ate both pupae and adult moths. Jeffrey pine chipmunks ate pupa; another observer saw a Lodgepole pine chipmunk catch and eat an adult moth as it fluttered near the base of a pine. (See WAUCOBA NEWS, Summer, Vol. 3, 1979 for record of these defoliating moths in the Crestview Area.) At this time of writing, Inyo Forest has decided that for 1981 no extensive spraying program will be undertaken; research plots to record additional movements of this species of moth may be set up for study.

--Enid A. Larson, Big Pine, Ca.

KEY TO THE SPECIES OF INYO-MONO PENSTEMONS by John Thomas Howell
(See Waucoba News, Vol IV, 1979 for list of species)

a. Anther-cells closed at their free ends, thus forming a tiny sac . . . . . b

a. Anther-cells opening at their free ends, the cells completely split open or the part near the filament attachment remaining closed . . . . . e

b. Corolla bright red . . . . . P. Bridgesii

b. Corolla bluish, purplish, or lavender c

c. Stems nearly leafless, the leaves mostly basal, the blades roundish; staminode glabrous . . . . . P. caesius

c. Stems leafy, the leaves elongate . . . . . d

d. Corolla 2 cm. long or less; staminode glabrous . . . P. laetus var. Roezlii

d. Corolla more than 2 cm. long; staminode hairy . . . . . P. papillatus

e. Anthers densely tomentose . . . . . f

e. Anthers glabrous or nearly so . . . . . g

f. Leaves toothed; corolla deep pink to purplish-red . . . . . P. Newberryi

f. Leaves entire; corolla bluish-violet . . . . . P. Davidsonii

g. Base of filaments pubescent with coarse hairs; plants shrubby, woody above the base . . . . . h

g. Base of filaments glabrous or nearly so; plants mostly herbaceous, generally not woody above the base (or subshrubby in P. incertus & Grinnellii). . . i

h. Panicle narrow and subspicate; corolla dull yellowish or brownish, 1-1.5 cm. long . . . . . P. Rothrockii

h. Panicle open; corolla whitish, 1.5-2 cm. long . . . . . P. breviflorus

i. Corolla generally less than 15 mm. long . . . . . j

i. Corolla generally more than 15 mm. long (sometimes shorter in P. monoensis) l

j. Inflorescence glandular-hairy . . . . . P. heterodoxus

j. Inflorescence glabrous . . . . . k

k. Plants mostly 2-5 dm. tall; staminode densely hairy . . . . . P. Rydbergii

k. Plants mostly less than 2 dm. tall; staminode glabrous or sparsely hairy . . . . . P. procerus

l. Inflorescence glabrous or finely hairy, not glandular . . . . . m

l. Inflorescence glandular (sparsely so in P. incertus) . . . . . o

m. Corolla reddish-purple to rose-lavender; anther-cells completely dehiscent . . . . . P. confusus

m. Corolla blue; anther-cells closed where they join . . . . . n

n. Calyx-lobes mostly 8-12 mm. long; staminode glabrous or rarely bearded . . . P. speciosus ssp. Kennedyi

n. Calyx-lobes mostly 4-8 mm. long; staminode densely bearded near the tip . . . P. speciosus var. pilifer

o. Stems finely and densely hairy below the inflorescence . . . . P. monoensis

o. Stems glabrous below the inflorescence . . . . . p

p. Corolla rose-pink; plants herbaceous; leaves toothed . . . . . P. floridus

p. Corolla whitish, violet, or blue; plants subshrubby . . . . . q

q. Leaves dentate, lanceolate to obovate; staminode exserted from corolla . . . P. Grinnellii

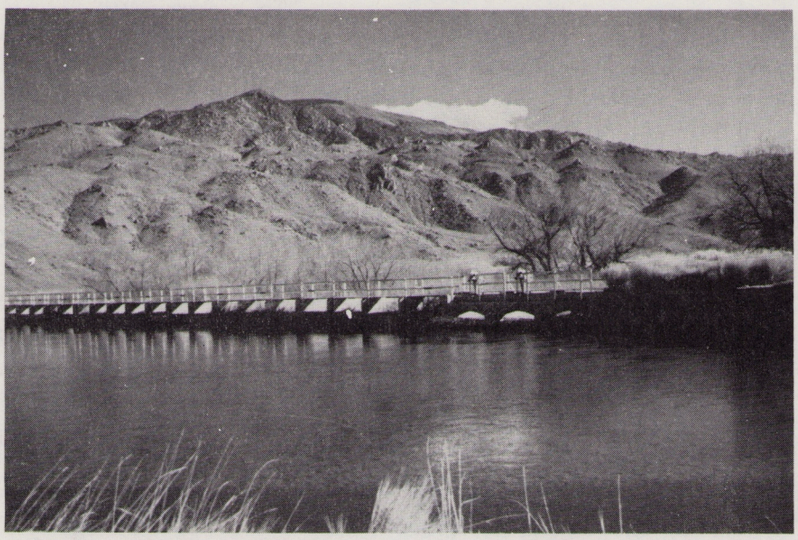
q. Leaves entire, linear to narrowly lanceolate; staminode included within corolla . . . . . P. incertus

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum

V
Spring, 1981
4 issues per year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127



Desilting Basin along the Owens River south of Big Pine, California
Photo by Enid A. Larson - Zeiss Contiflex

BROWN TOWHEES IN THE ALABAMA HILLS

On Dec. 18, '80 at dusk a dark towhee-sized bird was flushed in a brushy canyon in the Alabama Hills. Both my companion, Jean Sankey from Santa Barbara, and I believed it to be a Brown Towhee (*Pipilo funcus)* but due to poor light we were not sure of our identification as it perched on a shrub about 150' or so away.

On Dec 20, I went out to the same canyon and flushed two towhees several times. Once they perched in plain view facing me in good light not over 60' away. Identification was positive.

This flat canyon is a mixed open and brushy streambed with intermittent water. Larger shrubs are mostly narrow-leafed willow (*Salix exigua)*, Arroyo willow (*S. lasiolepis)*, and desert olive (*Forestiera neomexicana)* with many species of smaller desert shrubs such as sage, rabbitbrush, matchweed saltbushes, etc.

The nearest other known record in Inyo County for this bird is from Benko Canyon about 65 miles away on the east side of the Argus Mts. about 10 miles north of Trona.

Vincent Yoder
Lone Pine

MISCELLANEOUS NOTES FROM HERE & THERE

A Yellow-headed Blackbird, normally found only east of the Sierra Nevada was seen in central Contra Costa Co. (S.F. Chron. Jan.3, 1981)

Red-breasted Grosbeak - several sightings of this bird at Deep Springs College this past year (1980); both Purple and Cassin's Finches were also identified there.

Oregon Juncos have been unusually scarce in Big Pine this winter; large flocks have gathered along Oak Creek near Independence.

****

With this mild, sunny, dry winter (1980-81) unusually early breeding behaviors have been noted: John Mawby reports a male Sparrow Hawk, giving courtship calls and then nest building, at Deep Springs. D. Guiliani and I have been following the unusual behavior of the Panamint Chipmunk near Westgaard Narrows in late December and early January that suggests early mating rituals.

--Enid A. Larson,

The Fish & Wildlife Service, USDI, has just issued its report on "Important Fish and Wildlife Habitats in California". This inventory calls attention to the outstanding values at Mono Lake. Available at 2800 Cottage Way, Rm. E-2740, Sacramento, CA.

AN INTRODUCTION TO THE WHITE MOUNTAIN RESEARCH STATION

The University of California's White Mountain Research Station is a California statewide organized research unit, established for two purposes: (1) to provide laboratory facilities for any qualified research investigator who wishes to utilize the high-mountain environment in his or her work; and (2) to serve as a teaching facility for field courses conducted in the region.

Located in the vicinity of Bishop, California, the Station comprises four separate laboratory sites--the Ownes Valley Laboratory, three miles east of Bishop at an elevation of 4,050 feet above sea level; the Crooked Creek Laboratory on the White Mountain Range northeast of Bishop at an elevation of 10,150 feet, used in conjunction with the U.S. Forest Service; the Barcroft Laboratory at an elevation of 12,470 feet, the eleventh highest high-altitude station in the world and the fourth highest in North America; and the Summit Laboratory atop White Mountain Peak at an elevation of 14,250 feet, the fourth highest high-altitude lab in the world and the highest in North America. The three laboratories above 10,000 feet are within the Inyo National Forest.

General operational policy for the WMRS is set by the University of California President's Advisory Committee for the White Mountain Research Station (WMRS), which includes faculty representatives from every campus of the University, Stanford University, and out of state institutions. The accounts of WMRS are at the UCLA campus, but WMRS is a statewide organized research unit and reports directly to the President's Office of the University of California.

In the more than 25 years of its existence, hundreds of scientists have used the WMRS laboratories. These investigators have conducted research in a variety of fields in the agricultural, biological, and physical sciences, and have come to the Station from universities and colleges, from government laboratories, and from industrial research laboratories located both in this country and abroad. The facilities also have been utilized by hundreds of undergraduate students enrolled in field courses conducted at the WMRS by a number of academic institutions.

The annual budget for the Station brings approximately a quarter of a million dollars annually to the Mono-Inyo area for salaries, goods, and services.

The University is unlike the other users of public or private lands in the eastern Sierra or White Mountain areas. Its product or business is education, not mining, not cattle, not forestry, nor tourism, but the education of people; and in the case of WMRS, also scientific research in the natural and social sciences in order to advance the frontiers of science and knowledge. Clearly, it is difficult to compare the mission and product of the University with the material benefits derived from other users. Its contribution is measured in terms of the impressive number of papers that have been published on high-altitude research, animal behavior, human or animal physiology, botany, astronomic observations, meteorologic determinations, and more recently, the understanding of the geology of the region and its role in the scope of world-wide plate tectonics. Because of the uniqueness of the area and the fact that facilities for high-altitude research have been operated by the University for approximately thirty years in the Crooked Creek and White Mountain Scientific area, clearly there is a precedent for continuing research in this area conducted by the University.

The multicampus use of these facilities has not been limited to the University of California Research Investigators as well as caravans of students on field trips have come to this station from an impressive array of institutions:

Cal. Tech - Pasadena

Cal. State - Bakersfield
Hayward

California Fish and Game

Lawrence Space Laboratory

Stanford University

U.S. Veterans Adm. Palo Alto

University of Arizona

University of Nevada

University of California: Berkeley, Davis, Irvine, Los Angeles, Riverside, Santa Cruz, San Diego

University of Wisconsin, Madison

Two (2) groups coming from Italy show its International contributions

AREAS OF STUDY have included: Geology, Astronomy, Earth and Space Science, Physics, Applied Engineering, Tree-ring study, Physiology, Psychobiology, Botany, Zoology, Bio-Engineering, Ecology, Evolutional Biology, Entomology, Genetics, Viticulture and Enology.

The University believes that there should be a strong sense of commitment by the University and the Forest Service to a scientific program in the White-Inyo Mountains and eastern Sierra region.

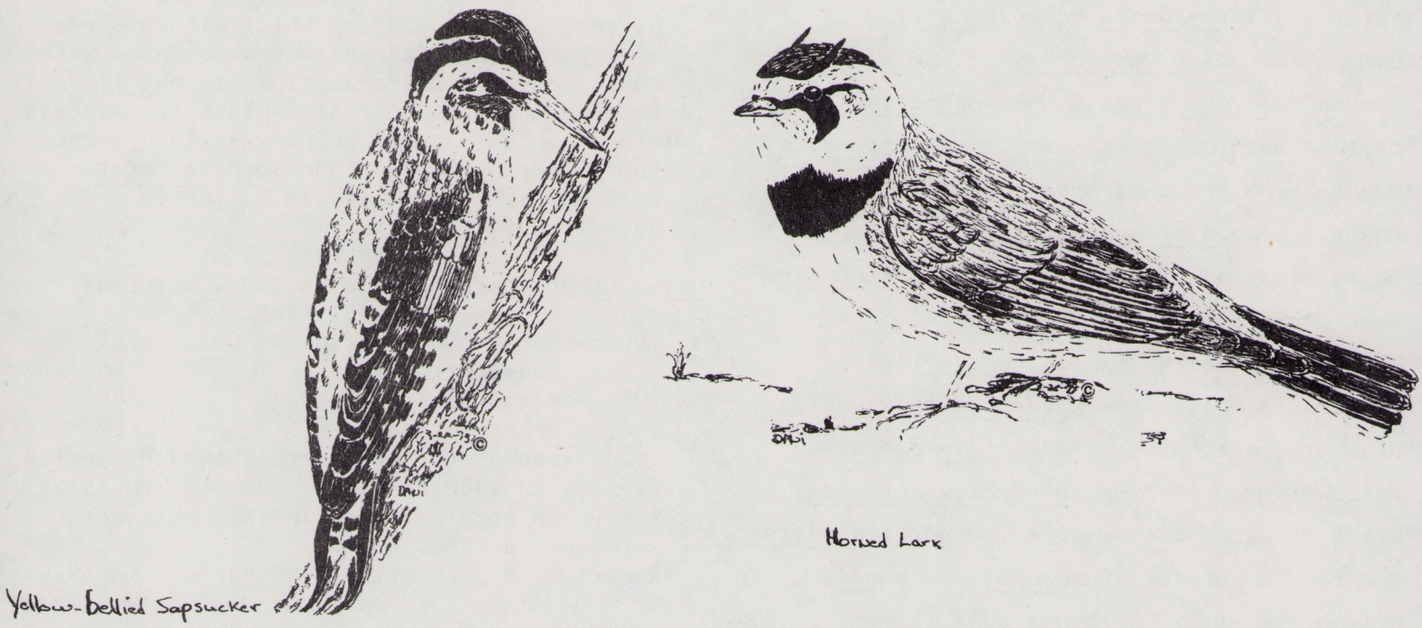
(This report is an excerpt from materials furnished by Dr. C.A. Hall, Jr., Director, WMRS).

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

Volume V
S U M M E R - 1981
4 issues per year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127



COMMON BIRDS OF THE EASTERN SIERRA REGION

The Horned Lark nests in the White Mts. at 11,800 ft. Contribution from the Artist, Dian R. Mawby, Deep Springs College

Reports from the Inyo Mountains

Populations of the Inyo Salamander,

Batrachoseps campi, have been studied recently at the University of California, Berkeley, Museum of Vertebrate Zoology. Drs. Yanev and Wake have reported (1981) from electrophoresis examinations of specimens, most of which were collected by Derham Giuliani, who was under contract with BLM to survey the canyons in the Inyo Mountains. This research was published in Herpetologica 37 (1), 1981.

Unique genetic differences among populations of this salamander were discovered among individuals living in adjacent canyons although not widely separated geographically. Populations at the southern end of the Inyo Mountains turned out to be distinctly different genetically from those at the northern extremity of the Range. Further research is needed to attempt to discover relationships and possible pathways of genetic flow.

****

VEGETATION TYPES IN THE SOUTHERN INYOS

From New York Butte to Keynot Peak there is listed in a Draft Environmental Assessment recently released by the Ridgecrest Resource Area, BLM (July, 1981) three Vegetation Types occurring in this region of the Range. These types are:

Sagebrush Scrub
Pinyon-Juniper Woodland
Sub-alpine Woodland

The Sub-alpine Woodland is composed of two species of pine: limber and bristlecone with an understory of Large Rabbit Brush, Utah Juniper, Mountain Tea, Mountain Mahogany, Wild Currant (2 species), Buckwheat (2 species) and Service Berry.

The California Native Plant Society considers one of the species of buckwheat *(Eriogonium microthecum)* as rare and endangered.

Four other plant species growing in the vicinity of Cerro Gordo are regarded at this time as unique for the Inyo Mts. and of possible rare occurrence in Inyo County.

Leonardo da Vinci: "The day will come when men get to know animals well, and then any crime against an animal will be considered a crime against humanity."

PRELIMINARY LIST FROM

THE INYO MTS.

Birds: (* - Known breeding species)

Red-tailed hawk (Buteo jamaicensis)

Golden eagle (Aquila chrysaetos)

American kestrel (Falso sparverius)

Chukar (Alectoris chukar)

White-throated swift (Aeronautes saxatalis)

Common flicker (Colaptes auratus)

**Hairy woodpecker (Picoides villosus)*

**Gray flycatcher (Empidonax wrightii)*

**Scrub jay (Aphelocoma coerulescens)*

Common raven (Corvus corax)

Pinyon jay (Gymnorhinus cyanocephalus)

**Clark's nutcracker (Nucifraga columbiana)*

**Mountain chickadee (Parus gambeli)*

Bushtit (Psaltriparus minimus)

White-breasted nuthatch (Sitta carolinensis)

**Rock wren (Salpinctes obsoletus)*

Mountain bluebird (Sialia currucoides)

Townsend's solitaire (Myadestes townsendi)

**Blue-gray gnatcather (Polioptila caerulea)*

Yellow-rumped warbler (Dendroica coronata)

**Black-throated gray warbler (Dendroica nigrescens)*

Townsend's warbler (Dendroica townsendi)

Wilson's warbler (Wilsonia pusilla)

**Western tanager (Piranga ludoviciana)*

**Black-headed grosbeak (Pheucticus melanocephalus)*

Cassin's finch (Carpodacus cassinii)

**House finch (Carpodacus mexicanus)*

**Red crossbill (Loxia curvirostra)*

**Green-tailed towhee (Papilo chlorurus)*

**Rufous-sided towhee (Pipilo erythrophthalmus)*

**Dark-eyed junco (Junco hyemalis)*

Chipping sparrow (Spizella passerina)

Fox sparrow (Passerella iliaca)

Mammals:

Coyote (Canis latrans)

Mountain lion (Felis concolor)

Golden-mantled ground squirrel

(Callospermophilus lateralis)

Uinta chipmunk (Eutamias umbrinus)

Western harvest mouse (Reithrodontomys megalotis)

Deer mouse (Peromyscus maniculatus)

Pinyon mouse (Peromyscus truei)

Desert woodrat (Neotoma lepida)

Black-tailed jackrabbit (Lepus californicus)

Mule deer (Odocoileus hemionus inyoensis)

Desert bighorn sheep (Ovis canadensis nelsoni)

SOME BIRD SIGHTINGS

Deep Springs College:

May 15, 1981 - LARK BUNTING
Reported by John & Dian Mawby

May 28 - 30 - A SCARLET TANAGER
Reported by D. Weiss; visiting birders

June 1 - An OVERBIRD
Seen by John & Dian Mawby

INYO-KERN COUNTY LINE:

"At the junction of the Kennedy Meadows turnoff road and Hiway 395, 7:25 p.m. an OSPREY was seen perched on a dead snag by Ronald Henry, Larry Wailles & Mary Ann Henry, China Lake-Ridgecrest

WEST OF LITTLE LAKE: Vince Yoder, Lone Pine reports the presence of a WRENTIT *(Chamaea fasciata)* in the foothills of the Sierra Nevada. It was singing while within cover of riparian habitat and was associated with *Forestiera neomexacana*. This is the first known record for this bird along the eastern slope of the Sierra; no chamise is present there. Wrentits and chamise have heretofore been thought of as in exclusive association.

****

China Lake reports on the Audubon Christmas census counts for 1979, 1980:

1980 -	total number of birds	4785
	species total	66
1979 -	total number of birds	4169
	species total	69

Comparison of the two lists showed 8 species present in 1980 that were not seen in 1979; 9 species were reported in 1979 that were not seen in 1980.

Reported as present in 1980 but not in 1979: Am. Bittern, Am. Avocet, Black Phoebe, Mt. Chickadee, Verdin, Crissal Thrasher, Mt. Bluebird, Cedar Waxwing

Reported as present in 1979 but not in 1980: Bufflehead, Ferruginous Hawk, Greater Yellowlegs, Least Sandpiper, Western Sandpiper, Hermit Thrush, Solitry Vireo, Am. Goldfinch, Brewer's Sparrow.

Lists were supplied by the Ron Henrys, China Lake; D. W. Moore prepared the 1980 list

****

PANAMINT LIZARD

D. Giuliani reports a *Gerrhonotus panamintinus* at the mouth of Coldwater Creek, north of the Inyo-Mono line; seen in July, 1981.

John Wehausen reports a sidewinder seen in the mouth of Cottonwood Cyn, on the west slope of the White Mountains, 1981, Mono County.

****

OSAGE ORANGE

Doris Fredendall, Big Pine, reports one of these early introduced trees still growing at the old Butler Ranch (Graham Ranch) east of Big Pine.

Ina Piper, Bishop, reports 5 of these trees growing and fruiting east of Bishop at the old Billy Smith Ranch (later owned by L. Marquam, principal of BUHS in early 1920's).

****

PANDORA MOTH

Adult moths emerged in July, 1981 from cocoons kept in terraria 3 years after being gathered as caterpillars at the Crestview pine infestation. U.S. Forestry reports that this year's infestation in that area is under control though no sprays were used. Moths emerged in jars: 1 with soil and humus, the other with no soil substrate or moisture added.

Reported by Jack Edell and D. Giuliani

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

Volume V
A U T U M N - 1981
4 issues per year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

This index covers five years (four issues per year from 1977 to 1982). The following abbreviations have been used: Roman numerals for volume number, W for Winter, SP, for Spring, S, for summer, A, for Autumn. SUPPL refers to the supplements for Volumes I through III. Supplements will be indexed in the next issue of Waucoba News.

Atmosphere
Sierra Wave II,A,1978
Sundogs (Halo) II,SP,1978
Lit. ref. to II,S,1978

Beetles
Click I,W,1977; III,W,1979
Meloids I,A,1977
Scarab I,W,1977
Rain Beetle I,W,1977; II,S,1978
Weevil I,SP,1977
From Eureka Valley IV,S,1980

Birds
Census List:
China Lake V,S,1981
Mono Lake 1977,1978,1979,I,II,III
Sightings:
Eureka Valley Playa I,W,1977
Deep Springs IV,W,1980
Lone Pine III,SP,S,1979; IV,W,1980
Sketches of V,S,1981
Unusual for area:
Catbird III,A,1979; I,S,1977
Cuckoo, yellow-billed I.S,1977
Grosbeck, Rose-breasted V,SP,1981
Oriole, scarlet-headed I.A,1977
Osprey V,S,1981
Owl,
Flamulated I,SP,1977
Long-eared I,SP,1977;III,S,1979
Thrasher, Le Conte SUPPL
Towee, Brown V,SP,1981
Woodpecker, Acorn II,A,1978
Wrentit V,S,1981

Botanical Notes
(See Supplements)

Butterflies:
Migration of II,S,1978
Monarch I,W,S,1977
Painted Lady I,W,1977; II,S,1978

China Lake
Bird Census Report V,S,1981

Chipmunks
Inyo III,A,1979
Panamint I,S,A,1977; III,SP,1979;
III,SUPPL,1979
Sagebrush:
Range Ext. I,W,1977

Cloud
Lenticular II,A,1978
Anvil III,A,1979

Crustaceans:
Eureka Valley Playa I,W,1977

Contributors:
Andrews, Fred IV,S,1980
DeDecker, Mary I,SP,1977;II,SUPPL,1978
Dun, John I,A,1977
Edell, Jack V,W,S,1981
Fredendall, Doris V,S,1981
Gaines, David I,S,A,1977; II,A,1978
Gorman, Mary I,A,1977
Giuliani, Derhan I,S,1977; III,S,A,1979
Gann, E. III,S,1979
Hall, C.A. V,W,1981
Henry, Mary Ann I,S,1977;II,W,1978;III,W,1979;
V,S,1981
Henry, Ron II,S,1978; V,S,1981
Heindel, Tom & Jo I,W,SP,S,A,1977; II,W,S,1978
IV,W,1980
Howell, J.T. I,SP,1977; V,W,1981; See SUPPL.
Howard, Alice Q. IV,S,1980
Klieforth, H. III,A,1979
Larson, Enid A. III,A,1979
Maser, C. III,A,1979
Mawby, Dian V,S,1981
Mawby, John I,SP,1977; II,SP,1978
Mangan, Larry I,W,1977
Matson, John I,A,1977
Piper, Ina V,S,1981
Pavlik, Bruce II,S,1978; IV,W,1980
Pinto, John I,A,1977
Powell, J. III,W,1979
Raub, W.H. I,S,1977
Stebbins, G.L. IV,S,1980
Sugden, Evan IV,W,1980
Taylor, Dean I,W,1977;II,S,1978
Tomback, D. III,W,1979; SUPPL,1979
Trappe, G. III,A,1979
Urquhart, F. I,SP,1977
Ure III,A,1979
Wake, D. V,S,1981
Wehausen, J. I,W,1977;SUPPL 1978; III,W,1979
White, Larry II,S,1978; III,A,1979
Williams, Margaret I,S,1977
Winkler, D. II,A,1978; III,W,A,1979
Yanev, K. V,S,1981
Yoder, V. III,W,SP,S,A,1979; IV,W,S,1980;
V,SP,1981

da Vinci, Leonardo
quotation from V,S,1981

Death Valley
Race track rocks I,SP,1977
Bird Sightings:
New to DV I,A,1977

Deep Springs
Birds Reported V,S,1981
Click Beetles III,W,1979
Sketches from V,S,1981

Ecology
Insect Ecology - Mono Basin IV,W,1980
Mono Lake ecology endangered II,SP,1978
Outline,Alabama Hills Study III,SP,1979
Reports:
Fish & Wildlife Service V,SP,1981
Mono Basin Research Group I,A,1977
Pac.NW Forest & Range Exp.Sta III,A,1979

Energy
ref. potential for II,S,1978

Eureka Valley
Beetles of IV,S,1980
Bird List II,W,1978
Playa I,W,1977
Sand dunes:
Beetles of I,SP,A,1977; IV,S,1980
Booming of I,S,1977
Dune formation II,W,1978
Green weevils I,SP,1977
Lists from II,W,SP,1978
Range Limits (insects) I,A,1977
Research in II,W,S,1978
Wildflowers of II,S,1978

Fossils
Mollusks, Westgard I,SP,1977
in the making (Eureka) I,W,1977

Glacier
Dana Plateau I,S,1977

Grasses
See Supplements

Insects
I,SP,S,W,A,1977; II,SP,1978; III,S,W,1979;
IV,S,W,1980; V,S,W,1981

Inyo County
Plants, new genus I,W,1977
new subspecies (local) I,W,1977
range ext.(ENCELIOPSIS) II,S,1978
Rare Distribution in:
Inyo Brown Towhee IV,A,1980; V,S,1981
Inyo Salamander (endemic) IV,A,1980;
V,S,1981
Wrentit V,S,1981
Listings, Birds:
I,W,A,1977; III,SP,1979; V,S,1981
Mammals List:
V,S,1981

Inyo-White Mountains
Birds of V,S,1981
Description of IV,SP,1980
Labrador Tea (*Ledum glandulosum*) V,S,1981
Mammals of V,S,1981
Vegetation types in V,S,1981

Last Chance Range
Dedeckera eurekensis I,W,1977
Ash *(fanonala)* IV,S,1980

Lizard
Desert Iguana IV,S,1979
Panamint Aligator V,S,A,1981

Mammals:
I,W,SP,A,1977; II,W,A,1978; III,S,A,1979;
IV,S,1980; V,S,1981

Mono, Lake & Basin:
I,S,A,1977; II,SP,A,SUPPL,1978; III,W,S,A,
1979; IV,W,1980; V,SP,1981

Moths
Pandora, life cycle V,S,1981

Nevada Weather Watch II,W,A,1978

Photographs:
II,W,A,1978; III,W,A,1979; IV,SP,S,A,1980;
V,W,1981

Plants
Penstemons of Eastern Sierra I,A,SUPPL,1977;
IV,A,1980; V,W,1981
Pines III,W,1979; See Suppl.
Oak:
Int. Live Oak III,W,1979
Trees in Owens Valley IV,W,1980

Range Extensions
I,W,1977; II,S,1978; III,SP,1979; IV,S,1980;
V,S,1981

Relict Populations IV,SP,S,A,1980; V,S,1981

Research Studies
at Alabama Hills III,SP,1979
at Deep Springs III,W,1979
at Lone Pine III,W,1979; IV,W,1980
at Mono Lake II,A,1978; III,A,1979
at Owens Lake I,A,1977
White Mt. Res. Sta. V,SP,1981
Methods of Gathering Bird Data I,S,1977
Challenge to Forest Mngemt. III,A,1979
Ornithological II,S,1978

Saline Valley
Reports
Beetles I,A,1977
Monarch Butterflies I,W,1977
Research in progress II,W,1978
Wildflowers of II,S,1978

Sheep, Sierra Bighorn
Baxter herd I,W,1977

Supplements - indexed separately in Volumes
VI,W,1982 (to follow)

Swallenia Alexandrae
an endemic (Eureka V.) II,W,1978

Trees
Arizona Ash (*F Velutena*) IV,S,1980
Pine
Jeffrey: defoliation,refoliation -
III,S,1979; V,S,1981
Limber II,S,1978; III,W,1979
Seed dispersal III,SP,1979
White Bark III,W,SP,1979
Varieties in Owens Valley IV,W,1980;
V,S,1981

Vegetation Types
in Inyo Mountains V,S,1981

Weather III,A,1979

Waucoba News
Purpose of I,W,1979
Contributions to text I,W,1979

Wild Life Habitat
at Mono Lake V,SP,1981

==========

C O R R E C T I O N

==========

John Wehausen reported a Panamint Lizard seen in the mouth of Cottonwood Canyon on the west slope of the White Mts (1981) in Mono County.

This is the northernmost locality reported for this lizard.
Correct your summer issue Vol. V,S,1981)

****

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum

Volume VI
WINTER - 1982
4 issues per year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

This issue begins the 6th year of WAUCOBA NEWS with 750 copies in circulation. As founder and editor, I wish to express my thanks to those who have provided either the editor with stamped, self-addressed envelopes for direct mailing or who receive it by way of membership ($5.00) in the Bishop Historical Society. My sincere gratitude to those who have generously contributed items and unsolicited funds for the printing of photos.

UNUSUAL BIRD SIGHTINGS

On Jan. 4, 1982, Conrad Johnson, Big Pine, gave me a hurry-up telephone call. I responded even though snow was beginning to fall. Eleven LESSER SANDHILL CRANES were in an agricultural field along Stewart Lane (3 mi. south of town). In 2 groups: one of 5 and the other of 6, these birds were moving across the field about 600-800 feet from roadside where we were in a car. Gradually, they increased distance. Because of weather, it was impossible in following days to determine the length of stay.

On Feb. 5, 1982, Mrs. E. Pollorino, birder of Big Pine, reported the following:
"About 7:30 a.m. a darkish brown bird approximately 8 inches long (overall) with underparts buff color and a black patch under its bill. It was very shy and came alone to the feeding area. It did not scratch, but picked up seed." This answers the discription of an

Abert's TOWHEE

She also found her small notebook in which she kept a record of some birds sighted during the autumn of 1961. In it " I have noted seeing an Abert's Towhee, male, on Oct. 14, 1961 near Tinemaha, south of Big Pine."

Reported by the Mawby's at Deep Springs College:
June 1, 1981 - an OVENBIRD
May 28-30,1981 - SCARLET TANAGER
May 15, 1981 - LARK BUNTING

Reported Feb. 1982 by Vince Yoder, Lone Pine:

WHITE-THROATED SPARROW (*Zonotricha albicollis*)
TOWNSEND SOLITARE (*Myadestes townsendi*)

Reported from Big Pine by Enid A. Larson:

An Owl call that matches in Peterson's Field Guide: LONG EARED OWL.
A dovelike, mellow call repeated Hoo-Hoo-Hoo, a second bird gave its call of Hoo, Who-Who, Hoo, Hoo.
Can anyone provide a more accurate identity? This call has been heard evenings and between 5 - 6 a.m. in late Jan, Feb., 1982.

BUTTERFLIES OF CALIFORNIA

Along with two other authors, I am currently engaged in writing The Butterflies of California. This will be the first such work since 1927, when John A. Comstock published Butterflies of California, the only book so far to systematically treat the butterfly fauna of the most ecologically complex state in the union. Our book will describe in detail the distribution, geographic variation, and biology of each species, as well as illustrate in color every species and subspecies found within the state. Life histories of nearly all species will be described and illustrated. Much of our field research over the past several years has concentrated on poorly known areas of California, particularly Inyo County, the Warner Mountains, and the extreme northwestern corner of the state. *

Dr. John Emmel

THE ELEVENTH COMMANDMENT
by W. C. Lowdermilk, USDA

Thou shalt inherit the Holy Earth as a faithful steward, conserving its resources and productivity from generation to generation. Thou shalt safeguard thy fields from soil erosion, thy living waters from drying up, thy forests from desolation, and protect thy hills from overgrazing by thy herds, that thy descendants may have abundance forever. If any shall fail in this stewardship of the land, thy fruitfield fields shall become sterile stony ground and wasting gullies, and thy descendants shall decrease and live in poverty or perish from off the face of the earth.

(USDA Agricultural Information Bulletin No. 99 - Conquest of the Land Through 7,000 years)

Courtesy of Wayne Chandler, U.S. Forestry, Inyo National Forest, Bishop.

* Derham Giuliani is in the field in Springtime making many of the collections for this treatise on the butterflies in Inyo-Mono area.

BUCKWHEATS GALORE

I have been up and down Sherwin Grade on Highway 395 in Mono County a number of times but only twice have I botanized along the way: on August 7, 1938, and August 13, 1981. Each time I traveled what is now "old Sherwin Grade" and each time I was impressed with many kinds of *Eriogonum* that grow along that route between 4800 ft. elevation just below Paradise Camp and 7000 ft. elevation at Little Round Valley just beyond Toms Place. In all, there are 16 species and varieties; --I wonder if that many kinds can be found anywhere else in as limited an area in the Owens Valley region. This is the order in which they occur as one goes up the grade:

On arid flats just below Paradise Camp, 4800-5000 ft.: *E. Baileyi var. divaricatum, brachyanthum, inflatum, maculatum, nidularium.*

On rocky flats and slopes and on loose soil of road banks; north and south of old Sherwin Summit, 6000-6500 ft.: *E. Baileyi* var. *Baileyi, deflexum* var. *deflexum, Hermannii* var. *humilius, Kearneyi* var. *monoense, nudum* var. *Westonii, umbellatum* vars. *chlorothamnus* and *nevadense.*

Between old Sherwin Summit and Little Round Valley, 6700-7000 ft.: *E. elatum, esmeraldense, microthecum* vars. *ambiguum* and *laxiflorum. E. Cernuum* and *E. spergulinum* var.*Reddingianum* can be expected to occur here too but they were not detected on either date. They have been collected on Rock Creek at about 8500 ft.

-- J. T. Howell

SUPPLEMENTS

Supplementary sheets have been issued in 1977 (2); 1978 (1), and 1979 (3). In these Supplements, the Inyo-Mono Sierran GRASSES have been presented as written by J. T. Howell, California Academy of Sciences; also plant species lists from Eureka and Saline valleys and a few additional natural history notes as space allowed.

If you wish duplicate sheets in order to set up a book of Inyo-Mono Sierran Grasses for ease of reference , these sheets are available for distribution at 10 cents per sheet. (ORDER from Box 265 Big Pine, 93513; stamps are acceptable)

I N D E X

Birds
- LeConte Thrasher — I,1,1977

Cereals
- Barley]
- Wheat] — I,2,1977
- Rye]

Grasses in Inyo-Mono Sierra
- Cereals — I,2,1977
- Miscellaneous — II,1,1978
- Notes — II, 1,1979
- Tribes of
  - Barley — I,2,1977
  - Blue — III,1,1979
  - Brome — III,2,1979
  - Canary — III,3,1979
  - Fescue — III,2,3,1979
  - Grama — III,3,1979
  - Millet — III,3,1979
  - Oat — II,1,1978
  - Sorgum — III,3,1979
  - Timothy — I,1,1977

Mono, the Beautiful
- Botanical notes — II,1,1978

Pines
- Limber (*P. flexilis*) — III,1,1979
- Winglessness seeds of — III,2,1979

Plants
- List--Eureka Valley — II,1,1978
- List--Saline Valley — II,1,1978
- Notes
  - Botanical — I,1,1977
  - *Penstemon papillatus* — I,2,1977,

Sedges — II,1,1978

Roman Numeral = Volume Number
Arabic Number = Supplemental Number in the year given

N O T I C E

Available for purchase:

Taylor, D.W., 1981. Endangerment Status of *Lupinus DeDeckerae* on the Inyo National Forest, Ca. Contb. Mono Basin Res. Group No. 4. 80 p. plus illustrations. $3.25 postpaid from Lee Vining, CA 93541 (Order Direct)

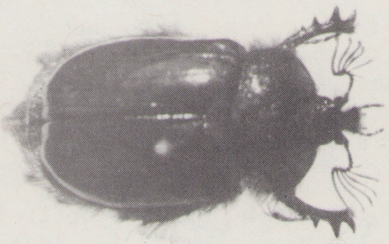
Larson, Enid A., 1981. Merriam's Chipmunk on Palo Escrito. PART 1 (will be issued in 3 parts) 124 p. plus illustrations. $12.95 (Plus tax in California) Order from: Waucoba Press, Big Pine, CA 93513

Waucoba News

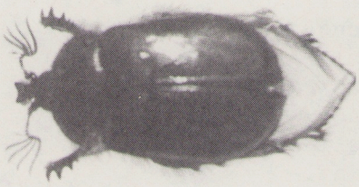
Sponsored by The Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

Volume VI
S P R I N G - 1982
4 issues per year

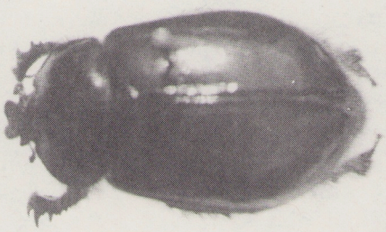
Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127



A
MALE: *Pleocoma rubiginosa rubiginosa*
from the Kern Plateau



B
MALE: *Pleocoma rubiginosa transsierrae*
from eastern Sierra



C
FEMALE: *Pleocoma rubiginosa rubiginosa*
from the Kern Plateau

Identification of species is based on the structural elements of their antennae.
Photos by D. Giuliani, Big Pine, California

R A I N B E E T L E - Female Discovered

For the past 10 years, the female of our local rain beetle, *Pleocoma rubiginosa transsierrae* has been sought in vain (See Waucoba News I,W,1977 & II,S,1978). This spell was broken February 15 by Derham Giuliani and myself. We were hunting rain beetles near Division Creek, Inyo County, at a previously known collecting site. Conditions were perfect for male flight; late afternoon chill, slightly overcast sky, and a light drizzle. To our initial surprise, no rain beetles were found anywhere along a 2300' climb up and down the steeply sloping habitat. Then, just before climbing into our vehicle at the bottom of a grade, a fuzzy red male whirred past. We collected it and decided to remain and search for more, since they usually occur in large numbers. But, we agreed to follow our next-seen specimens on their mate-searching flight, observing behavior instead of collecting. This we did, each of us finding another beetle. One of them, after a typical zig-zag-and-swoop bout of flight, landed under a shrub and began to dig itself into the ground. Two minutes later, it gave up, took off on another flight and landed a few meters beyond in a small clearing. In the middle of the open area, a female rain beetle rested with her head protruding from a nickel-diameter burrow. The male had probably been guided to her by her release of a sex pheromone, an airborne chemical aphrodisiac. The male quickly entered the burrow with the female and they jostled about in a small chamber just out of sight. Presumably they were mating. The male emerged not more than 10 minutes later and began to dig laterally near the burrow entrance, burying the female. He flew off after about 15 minutes of digging. We excavated the female and found her 6 inches below the surface, digging vertically downward. She was plump and probably full of eggs. Her characteristics were similar to other female *Pleocoma* species.

I was able to photograph the mating sequence on color slide film. The single female specimen is alive in an earth-filled domicile in my lab at this writing. She will eventually be given to Frank Hovore of Newhall, CA for examination. Dr. Hovore plans to publish a description of the female of the subspecies after further specimens are collected. Very little is known of Rain Beetle behavior so *Pleocoma* collectors are urged to observe, take good notes, and collect carefully!

Evan A. Sugden, Mono Basin Research Group
CURRENT ADDRESS: Department of Entomology, University of Calif., Davis, CA 95616

* * * * * * * * * * * * * *

BOTANICAL NOTE

A new site for *Argemone corymbosa* (Leafy prickly poppy) was found June 18,1981, east of "K" Range on the Naval Weapons Center in San Bernardino County, Argus Mountains; 2400-2800 feet elevation in sandy soil. At this site the plant was in flower June 18 and Dec 11, 1981 and Feb. 3, 1982. In the field, the green, glabrous leaves with yellow, sharp prickles 3-4 mm long are the most noticeable feature of this species.

Mary Ann Henry, China Lake, CA

Mono Basin Research Group Organizes

Since the summer of 1976, the Mono Basin has been the focus for a spectrum of inter-related scientific reserach projects. Many of the workers there have become friends and/or associates and a common interest in the natural history of the basin has become a unifying theme. In 1980, the concept arose of a formal organization to support such studies and teaching natural science field courses. Several meetings were held to discuss the interests of potential members and a framework of organization and cooperation began to emerge. The following months brought the generation of articles of incorporation and the draft for a set of bylaws. Currently, the Mono Basin Research Group has an official corporate name reserved under the State of California and will become an incorporated, non-profit, research-education organization when its bylaws are finalized and approved by the State. Donations from the public have already been accepted and are aiding the growth of a modest account.

Purposes of the organization are to facilitate studies of the natural history and ecology of the Mono Basin and other similar habitats, and to provide quality education in these areas of research through field and laboratory experience. Research scientists in the group include several PhDs or doctoral candidates and graduate students at major universities. Some of their fields of interest are Hydrology, Limnology, Physiological Herpetology, Aquatic and Terrestrial Entomology, Plant Ecology, Floristics, and Avian Ecology. The temporary Board of Directors is composed of a number of leading scientists and prominent citizens.

Last year, the owners of Tioga Lodge, on Route 395 at Mono Lake, granted M.B.R.G. free use of three motel units as office-laboratory space for an indefinite period. Tentative plans exist for transformation of the old Bodie Bar into a natural history museum. Ready to be housed there are the extensive plant collections of Dr. Dean Taylor, the growing Mono Basin synoptic insect collection of E. A. Sugden, and for the future, bird and mammal specimens and interpretive information. The museum will be open for donation and/or exhibit of material from M.B.R.G. members and the public.

M.B.R.G. invites participation by financial support (tax donation benefits) and/or cooperative research and teaching. Benefits to supporting members include field courses, access to research facilities and museum collection, opportunity for participation in on-going or independently guided studies and subscription to the M.B.R.G. newsletter. Membership fees will be announced in a forthcoming brochure.

For further information write to:

Mono Basin Research Group
P.O. Box 66
Lee Vining, CA 93541

Join us in independent, non-profit research and education!

* * * * * * * * *

THE CALIFORNIA NATIVE PLANT SOCIETY

The Bristlecone Chapter was recently organized at a meeting in Independence. It is the 21st chapter of this Society and will serve the Eastern Sierra. This Society is made up of laymen and professionals united by common interest in the plants of California. Its principal aims are to preserve the native flora and to add to the knowledge of members and public at large. Membership is open to all interested persons. Non-members are welcome to attend meetings and participate on field trips.

Vince Yoder was elected President of this chapter which will bear the insignia of a bristlecone pine. Betty Gilchrist was elected Secretary. Both officers are residents of Lone Pine. Local newspapers will carry announcements of time and place of field trips. First trip will be held early in May 1982.

AUDUBON SOCIETY

A local chapter of the Audubon Society is being organized in Owens Valley, with Earl Gann, President; Martha Reinholdt, Secretary; Penny Ashworth of Big Pine is Membership Chairman.

* * * * * * *

UNUSUAL BIRD RECORDS

The annual return of the Turkey Vultures were noted by Vince Yoder in Lone Pine on March 30, 1982. Four of these birds arrived in Big Pine on April 1 and in pairs settled in the tops of trees on Dewey St. They were on schedule.

HUMMINGBIRDS: One was reported by Enfields in Round Valley on March 6,1982; on March 10 in Big Pine one came to a feeder each day throughout the recent snowstorms. This one appeared to be a Rufous Hummer.

BROWN TOWHEE: Vince Yoder reports he continues to sight this species first reported in Dec. 1980 in the Alabama Hills; he thinks they may have become residents there.

D. Giuliani reports he saw one in Tunawee Cyn, south of Little Lake in March, 1982.

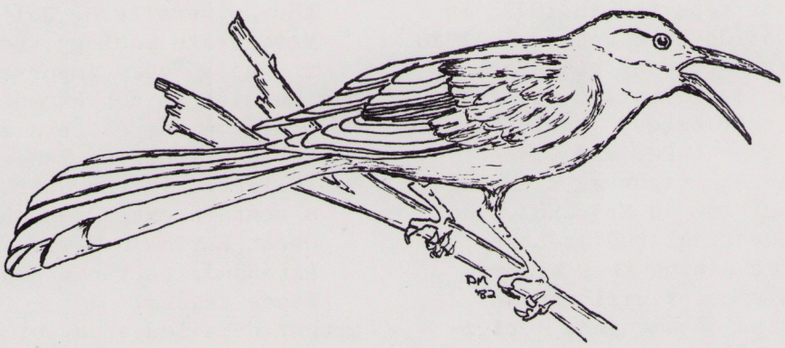
Tom Heindel wrote from Saudi Arabia he had no previous record for ABERT'S TOWHEE for Owens Valley. (See Waucoba News, Vol. VI, Winter, 1982).

* * * * * * * * *

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum

Vol. VI
Summer 1982
4 issues per year



SKETCH by DIAN MAWBY

GRACKLES GRACKLES
everywhere

BOAT-TAILED GRACKLE: A female was reported by Vince Yoder on May 25, 1982 at Diaz Lake, So. Owens Valley. David Gaines, Mono County, ornithologist reported 6 seen on May 8 near Lone Pine. See next page for details.

ALL ABOUT CHIA

J. T. Howell

Has it ever occurred to you that the botanical name for the widespread annual mint, *Salvia Columbariae*, is unusual? For years I have been subconsciously puzzled by the specific epithet but I never did anything about it. Recently, when reviewing the genus *Salvia* for the Sierra, I decided to look into the matter and what I found was interesting and surprising.

When George Bentham, the English botanist, was describing David Douglas' California specimen as a new species, the habit of the plant reminded him of a European wild flower, *Scabiosa Columbaria*, hence Bentham's Columbaria's sage. I have not been able to trace the ultimate origin of the word *columbaria*, except that it was used by herbalists. It is related to the Latin name for the order of doves and pigeons, *Columbae*. One of the common English names for the *Scabiosa* is "pigeon's scabious". The same word-root comes to us in the word columbarium, which was the classic term for a dovecote or piqeon house, from which is derived the name of a structure of funeral vaults.

But let's get back to Botany: the common name of *Aquilegia*, columbine, also comes from the Latin word for pigeon. The relationship of pigeon and this flower is obscure and I don't have time for further search. However in some Old World species of columbine the spurred petals bear a fancied resemblance to five pigeons clustered together!

Our common name for *Salvia Columbariae*, chia, is also interesting and of ancient origin. It is a name applied to several Latin American species of *Salvia* the seeds of which are used for human food. According to Dr. Dennis Breedlove the word, chia, has come to us through Spanish usage from Nahuatl, the language of the Aztecs.

(Aren't words intersting!)

Mortonia utahensis, an interesting shrub, was collected by D. Guiliani on a limestone substrate in Skeleton Hills, el. 2800 ft., south of Lathrop Wells, Nev., May 1, 1982. Thanks to Margaret Williams, No. Nev. Native Plant Soc., for its identification and for filing the specimen at the U. of Nev. herbarium. It is known in California from the Nopah Range (Mary DeDecker) and from the New York Mts. This is a southern species that has moved into Nevada from Arizona.

BIRD NOTES

OSPREYS bred successfully at Tinnemaha Reservoir in 1982. In each of the years from 1972-1978 a single pair of these birds built its nest but was unsuccessful in its attempts to breed at this reservoir. We made no observations 1979-81. On August 4, 1982 we saw two adults with a fledged juvenile there. Tom & Jo Heindel (on vacation in Big Pine in early August, from Saudi Arabia)

THE GREAT-TAILED GRACKLE - *Quiscalus mexicanus* (formerly known as the Boat-Tailed Grackle) was first reported in California near Yuma on June 6, 1964, when one female was collected. Since then, this species has spread and rapidly increased. In Death Valley, one pair was reported in 1977; in 1979, 30 of these birds were seen. In 1980 one pair was observed feeding young at Olancha. This species colonizes agricultural areas and desert oases. David Gaines, ornithologist at Mono Lake, and Vince Yoder at Lone Pine each reported sighting this bird near Lone Pine in May 1982. No evidence of their nesting at Diaz Lake. Two were seen at Lee Vining this summer. How far north this species will expand its range needs to be documented. Originally, it was a resident limited to northern Mexico and Texas. It is thought that low winter temperatures may eventually check its invasions northward and limit its expansion here in Owens Valley. (Data publ. in Dunn & Garrett by L.A. Audubon Society) Thanks to David Gaines, Chairman Mono Lake Committee, Lee Vining, Calif.

BOHEMIAN WAXWINGS *(Bombycilla carrulus)* about a dozen, were together with a flock of Cedar Waxwings feeding on red berries in Lone Pine on Feb. 13, 1982. "This tougher winter must be forcing birds farther south" said Vince Yoder who made this sighting.

WARBLERS: Near Big Pine at junction of Hiway 395 and Westgard (168), Earl Gann and an Audubon group in late May, 1982 sighted a Parula Warbler *(Parula Americana)* and a Palm Warbler *(Dendroica Palmerum)*. Both of these warblers are rare for this area but have been previously recorded in Owens Valley and at Deep Springs College.

BAND-TAILED PIGEON: A lone bird *(Columbia fasciata)*, reported by Enid Pollarino, came repeatedly to a feeding station at her home in west Big Pine, mid-winter 1982.

WHITE-FRONTED GOOSE: *(Anser albifrons)* One was sighted by Paul Neal and Paul Johnson at Mono Lake Park 21 Feb. 1982. This is a common migrant but is seldom reported this far inland.

ROSE-BREASTED GROSBEAK was seen near Honeymoon Flats, west of Bridgeport, in the Toiyabe Nat'l Forest in Mono County May 26-29, 1982 Reported by J.M. Sweeney, Jr., Vista, Ca. *(Pheucticus ludovicianus)*

RARE DISCOVERY
in
The White Mountains

An important LIZARD record

On May 28, 1982, Ron Kuhr, Big Pine resident, turned over a large brown rock *(Poleta Formation)* in the pinyon forest at about 8200 ft. el, in the White Mountains. Beneath this rock he picked up a blue-tailed skink. He brought this lizard to me for identification. Its characteristics were those of the Western Skink, *Eumeces skiltonianus*. This species never before had been recorded from the White Mountains. Dr. Robert C. Stebbins, judged the identification to be this species when I sent the live specimen to him at the University of Calif., Museum of Vertebrate Zoology, Berkely. He said it was a "very important find".

This species is not known to occur in California on the eastern side of the Sierra Nevada, south of Tahoe. This individual collected in the White Mountains may be a western extension of those in the Great Basin in Nevada or perhaps it has extended its range southward from the Tahoe region.

Further detailed study of this isolated population is now needed to determine the corridors of access and the limits of its range in eastern California.

This find is another instance in the Inyo-Mono area that we live in a truly great biological paradise for scientific investigation and for opportunities for new discoveries among plant and animal life. This is partly due to isolation, partly to the presence of relatively undisturbed areas and partly to the presence of relict populations. Records from this area fill in gaps in man's knowledge of ancient movements of plants and animals in the Great Basin, often since Miocene times, 16 million years ago.

Thanks to Ron Kuhr who recognized something unusual when he saw it and for his curiosity in trying to find out what it was.

--Enid A. Larson

MAMMAL NOTES

James Wilson, Bishop, climbed Mt. Lamarck (13,417 ft.) in Sept. 1981. Within 50 vertical feet of the summit he observed what he identified as a pine squirrel *(Tamiasciurus)*; No pines trees were closer than 2 plus miles at Darwin Lake.

Ed. Note: This would be outside of this squirrel's usual habitat. Additional observation will be welcomed.

SIERRA MARMOT in Big Pine Cyn, this year is again present at 7800 feet el. after an absence of 3 consecutive years. Young appeared the first week in July; 2 young of-the-season are still foraging on *Sisymbrium* on Aug. 20, 1982. No adults are still active there.

--Enid A. Larson

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, CA. 93514 Volume IV
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513 AUTUMN 1982
Subscription: Four 9" long stamped self-addressed envelopes 4 issues per year
or a membership ($5.00) in Bishop Museum

This issue is dedicated to those courageous people who fought the flood of Big Pine Creek September 26-27, 1982 -- a reissue of this poem is timely.

THE RIVER *by* Pare Lorentz

From as far West as Idaho,
Down from the glacier peaks of the Rockies--
From as far East as New York,
Down from the turkey ridges of the Alleghenies
Down from Minnesota, twenty five hundred miles,
The Mississippi River runs to the Gulf.
Carrying every drop of water, that flows down two-thirds the continent,
Carrying every brook and rill, rivulet and creek,
Carrying all the rivers that run down two-thirds the continent,
The Mississippi runs to the Gulf of Mexico.
Down the Yellowstone, the Milk, the White and Cheyenne; The Cannonball, the Musselshell, the James and the Sioux:
Down the Judith, the Grand, the Osage, and the Platte, the Skunk, the Salt, the Black, and Minnesota;
Down the Rock, the Illinois, and the Kankakee,
The Allegheny, the Monongahela, Kanawha and Muskingum;
Down the Miami, the Wabash, the Licking and the Green,
The Cumberland, the Kentucky, and the Tennessee;
Down the Ouchita, the Wichita, the Red, and Yazoo--
Down the Missouri three thousand miles from the Rockies;
Down the Ohio a thousand miles from the Alleghenies;
Down the Arkansas fifteen hundred miles from the Great Divide;
Down the Red, a thousand miles from Texas;
Down the Great Valley, twenty-five hundred miles from Minnesota,
Carrying every rivulet and brook, creek and rill,
Carrying all the rivers that run down two-thirds the continent--
The Mississippi runs to the Gulf.
New Orleans to Baton Rouge,
Baton Rouge to Natchez,
Natchez to Vicksburg,
Vicksburg to Memphis,
Memphis to Cairo--
We built a dyke a thousand miles long.
Men and mules, mules and mud;
Mules and mud a thousand miles up the Mississippi.
A century before we bought the great Western River, the Spanish and the French built dykes to keep the Mississippi out of New Orleans at flood stage.
In forty years we continued the levee the entire length of the great alluvial Delta,
That mud plain that extends from the Gulf of Mexico clear to the mouth of the Ohio
The ancient valley built up for centuries by the old river spilling her floods across the bottom of the continent--
A mud delta of forty thousand square miles.
Men and mules, mules and mud--
New Orleans to Baton Rouge,
Natchez to Vicksburg,
Memphis to Cairo--
A thousand miles up the river.
And we made cotton king!
We rolled a million bales down the river for Liverpool and Leeds. . .
1860: we rolled four million bales down the river;
Rolled them off Alabama,
Rolled them off Mississippi,
Rolled them off Louisiana,
Rolled them down the River!
We fought a war
We fought a war and kept the west bank of the river free of slavery forever.
But we left the old South impoverished and striken.
Doubly striken, because, beyond the tragedy of war, already the frenzied cotton cultivation of a quarter of a century had taken toll of the land.
We mined the soil for cotton until it would yield no more and then moved west.
We fought a war, but there was a double tragedy--the tragedy of land twice impoverished.
Black spruce and Norway pine,
Douglas fir and Red Cedar,
Scarlet oak and Shagbark hickory,
Hemlock and aspen--
There was lumber in the North.
The war impoverished the old South, the railroads killed the steamboats.
But there was lumber in the North.
Heads up!
Lumber on the upper river.
Heads up!
Lumber enough to cover all Europe.
Down from Minnesota and Wisconsin,
Down to St. Paul;
Down to St. Louis and St. Joe--
Lumber for the new continent of the West.
Lumber for the new mills.
There was lumber in the North and coal in the hills.

Iron and coal down the Monongahela.
Iron and coal down the Allegheny.
Iron and coal down the Ohio.
Down to Pittsburgh,
Down to Wheeling,
Iron and coal for the steel mills, for the railroads driving West and South, for the new cities of the Great Valley--
We built new machinery and cleared new land in the West.
Ten million bales down to the Gulf--
Cotton for the spools of England and France.
Fifteen million bales down to the Gulf--
Cotton for the spools of Italy and Germany.
We built a hundred cities and a thousand towns:
St. Paul and Minneapolis
Davenport and Keokuk,
Moline and Quincy,
Cincinnati and St. Louis,
Omaha and Kansas City. . .
Across to the Rockies and down from Minnesota,
Twenty-five hundred miles to New Orleans,
We built a new continent.

Black spruce and Norway pine,
Douglas fir and Red cedar,
Scarlett oak and Shagbark hickory.
We built a hundred cities and a thousand towns--
But at what a cost!
We cut the top off the Alleghenies and sent it down the river.
We cut the top off Minnesota and sent it down the river.
We left the mountains and the hills slashed and burned,
And moved on.
The water comes downhill, spring and fall;
Down from the cut-over mountains,
Down from the plowed-off slopes,
Down every brook and rill, rivulet and creek;
Carrying every drop of water that flows down two-thirds the continent.
1980 and 1907;
1913 and 1922,
1927,
1936,
1937!

Down from Pennsylvania and Ohio,
Kentucky and West Virginia,
Missouri and Illinois,
Down from North Carolina and Tennessee--
Down the Judith, the Grand, the Osage and the Platte,
The Rock, the Salt, the Black and Minnesota,
Down the Monongahela, the Allegheny, Kanawha and Muskingum,
The Miami, the Wabash, the Licking and the Green,
Down the White, the Wolfe, and the Cache,
Down the Kaw and Kaskaskia, the Red, and Yazoo,
Down the Cumberland, Kentucky and the Tennessee--
Down to the Missippi.
New Orleans to Baton Rouge--
Baton Rouge to Natchez--
Natchez to Vicksburg--
Vicksburg to Memphis--
Memphis to Cairo--
A thousand miles down the levee the long vigil starts.
Thirty-eight feet at Baton Rouge
River rising.

Helena: river rising.
A thousand miles to go
A thousand miles of levee to hold--
Coastguard patrol needed at Paducah!
Coastguard patrol needed at Paducah!

200 boats - wanted at Hickman!
200 boats - wanted at Hickman!

Levee patrol: men to Blytheville!
Levee patrol: men to Blytheville!

2000 men wanted at Cairo!
2000 men wanted at Cairo!

A hundred thousand men to fight the old river.
We sent armies down the river to help the engineers fight a battle on a two thousand mile front:
The Army and the Navy,
The Coast Guard and the Marine Corps,
The CCC and the WPA,
The Red Cross and the Health Service.
They fought night and day to hold the old river off the valley.
Food and water needed at Louisville: 500 dead, 5000 ill;
Food and water needed at Cincinnati;
Food and water and shelter and clothing needed for 750,000 flood victims;
Food and medicine needed at Lawrenceburg;
35,000 homeless in Evansville;
Food and medicine needed in Aurora;
Food and medicine and shelter and clothing for 750,000 down in the valley.
Last time we held the levees,
But the old river claimed her valley.
She backed into Tennessee and Arkansas
And Missouri and Illinois.
She left stock drowned, houses torn loose,
Farms ruined.

1903 and 1907,
1913 and 1922,
1927,
1936, 1937!

We built a hundred cities and a thousand towns--
But at what a cost!

Spring and fall the water comes down and for years the old river has taken a toll from the Valley more terrible than ever she does in flood times.
Year in, year out, the water comes down.
From a thousand hillsides, washing the top off the Valley.
For fifty years we plowed for corn, and moved on when the land gave out.
Corn and wheat; wheat and cotton--we planted and plowed with no thought for the future--
And four hundred million tons of topsoil,
Four hundred million tons of our most valuable natural resource have been washed into the Gulf of Mexico every year.
And poor land makes poor people.
Poor people make poor land.
For a quarter of a century we have been forcing more and more farmers into tenancy.
Today forty percent of all farmers in the great Valley are tenants.

- to be continued in
the next issue -

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, CA 93514 Volume VII
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513 WINTER 1982
Subscription: Four 9" long stamped self-addressed envelopes 4 issues per year
or a membership ($5.00) in Bishop Museum

THE RIVER *by* Pare Lorentz (continued from last issue)

Ten percent are sharecroppers,
Down on their knees in the valley,
A share of the crop their only security
No home, no land of their own,
Aimless, footloose, and impoverished,
Unable to eat even from the land because their cash crop is their only livlihood.
Credit at the store is their only reserve.
And a generation growing up with the new land in the West--
No new continent to build.
A generation whose people knew King's Mountain, and Shiloh;
A generation whose people knew Fremont and Custer;
But a generation facing a life of dirt and poverty,
Disease and drudgery;
Growing up without proper food, medical care, or schooling,
"Ill-clad, ill-housed and ill-fed"--
And in the greatest river valley in the world.

There is no such thing as an ideal river in Nature, but the Mississippi is out of joint.
Dust blowing in the West--floods raging in the east--
We have seen these problems growing to horrible extremes.
When first we found the great valley it was forty percent forested.
Today, for every hundred acres of forest we found, we have ten left.
Today five percent of the entire valley is ruined forever for agricultural use!
Twenty-five percent of the topsoil has been shoved by the old river into the Gulf of Mexico.
Today two out of five farmers in the valley are tenant farmers - ten percent of them share croppers, living in a state of squalor unknown to the poorest peasant in Europe.
And we are forcing thirty thousand more into tenancy and cropping every year.
Flood control of the Mississippi means control in the Great Delta that must carry all the water brought down from two-thirds of the continent.
And control of the Delta means control of the little rivers, the great arms running down from the uplands. And the old river can be controlled.
We had the power to take the valley apart--we have the power to put it together again.

In 1933 we started, down on the Tennessee River, when our Congress created the Tennessee Valley Authority, commissioned to develop navigation, flood control, agriculture, and industry in the valley: a valley that carries more rainfall than any other in the country; the valley through which the Tennessee used to roar down to Paducah in flood times with more water than any other tributary of the Ohio.

First came the dams.

Up on the Clinch, at the head of the river, we built Norris Dam, a great barrier to hold water in flood times and to release water down the river for navigation in low water season.

Next came Wheeler, first in a series of great barriers that will transform the old Tennessee into a link of fresh water pools locked and dammed, regulated and controlled, down six hundred fifty miles to Paducah.

But you cannot plan for water unless you plan for land: for the cutover mountains--the eroded hills--the gullied fields that pour their waters unchecked down to the river.

The CCC, working with the forest service and agricultural experts, have started to put the worn fields and hillsides back together; black walnut and pine for the worn out fields, and the gullied hillsides; black walnut and pine for new forest preserves, roots for the cut-over and burned over hillsides; roots to hold the water in the ground.

Soil conservation men have worked out crop systems with the farmers of the Valley--crops to conserve and enrich the topsoil.

Today a million acres of land in the Tennessee Valley are being tilled scientifically.

But you cannot plan for water and land unless you plan for people. Down in the Valley, the Farm Security Administration has built a model agricultural community. Living in homes they themselves built, paying for them on long term rates the homesteaders will have a chance to share in the wealth of the Valley.

More important, the Farm Security Administration has lent thousands of dollars to farmers in the Valley, farmers who were caught by years of depression and in need of only a stake to be self-sufficient.

But where there is water there is power.

Where there's water for flood control and water for navigation, there's water for power--
Power for the farmers of the Valley
Power for the villages and cities and factories of the Valley
West Virginia, North Carolina, Tennessee, Mississippi, Georgia and Alabama.
Power to give a new Tennessee Valley to a new generation. Power enough to make the river work!

EPILOGUE

We got the blacks to plant the cotton and
they gouged the top off the valley.
We got the Swedes to cut the forests, and
they sent them down the river.
Then we moved our saws and our plows and
started all over again;
And we left a hollow-eyed generation to
peck at the wornout valley;
And left the Swedes to shiver in their
naked North country.
1903, 1907, 1913, 1922, 1927, 1936, 1937--
For you can't wall out and dam two-thirds
the water in the country.
We built dams but the dams filled in.
We built a thousand mile dyke, but it didn't hold;
So we built it higher.
We played with a continent for fifty years.

Flood control? Of the Mississippi?

Control from Denver to Helena;
From Itasca to Paducah;
From Pittsburgh to Cairo--
Control of the wheat, the corn and the
cotton land;
Control enough to put back a thousand
forests;
Control enough to put the river together
again before it is too late. . .
before it has picked up the heart of
a continent and shoved it into the
Gulf of Mexico

****

WORDS ARE INTERESTING

J.T. Howell's contribution to WAUCOBA NEWS Summer issue, 1982, stimulated another reader to send in the following account:

Sagebrush.--A shrub, originally native to Asia that has spread into the Western Hemisphere when climatological conditions permitted.
The genus *Artemisia* takes its name from Queen Artemisia of Caria; the species name "tridentata" refers to its leaf character that shows a 3-toothed division. Queen Artemisia built a tomb in Asia Minor about 350 B.C. at Halicarnassas for her dead husband, King Mausolus. This tomb stood for centuries as one of the SEVEN WONDERS OF THE WORLD until it was destroyed by an earthquake. From this structure came the name 'mausoleum'. Dr. Tom Rodgers, Paradise, Ca., continues "I first learned the name *Artemisia* from the late Dr. Carl Duncan, Biology Dept., San Jose State College, who showed me a plant of this genus growing near the Mausoleum in San Jose."

****

A WILDLIFE SANCTUARY

Riverdell Wildlife Sanctuary in Butte County was organized in 1977 by people who were trying to improve their ability to live in harmony with nature. When residents of Riverdell Lane at the lower limits of Paradise, Ca., proclaimed their intentions of living lightly on the land, members posted their properties with 9 x 12 enameled steel signs. The idea spread rapidly, not only in their town but by 1982 membership had expanded to Magalia, De Sabla, Honey Run, Beetle Creek, Chico, Durham, Gridley, Capay, Forest Ranch, Pine Creek, Red Bluff. These sanctuaries consist of city lots ranging in acreages of 1/4 acre to an entire 700 acre ranch. Membership requires the property owner to post one of these signs (dues are the cost of the sign). Further information may be had by telephone (916) 877-7000 or 877-3270 or write to Dr. Tom Rodgers, 1520 Millwood Lane, Paradise, CA. 95969

WAUCOBA NEWS is delighted to report this concern for wildlife and for the action of residents of Butte County who had the foresight and determination to undertake this pioneering approach to the kind of land use ethic that Dr. Aldo Leopold called "stewardship" in opposition to "exploitive" land use.

****

AN EXTENDED LIST OF PLANTS OF THE WHITE MOUNTAINS

A Flora of the White Mountains (University California Press) was published in 1973 by Lloyd & Mitchell. Since that time additional field work by botanists and other workers have added 40 new species to the records, bringing the known plants of this area to 852 species.

Dean Wm. Taylor & Mary DeDecker have compiled this additional list of known plants and published it in the NEWSLETTER OF THE BRISTLECONE CHAPTER OF THE CALIFORNIA NATIVE PLANT SOCIETY (Vol. 1, #4, 1982). Reprints are now available from Dr. Dean Taylor, P. O. Box 194, Leevining, CA, 93541. Send 20¢ stamp, cost of mailing.

****

MONARCH BUTTERFLIES

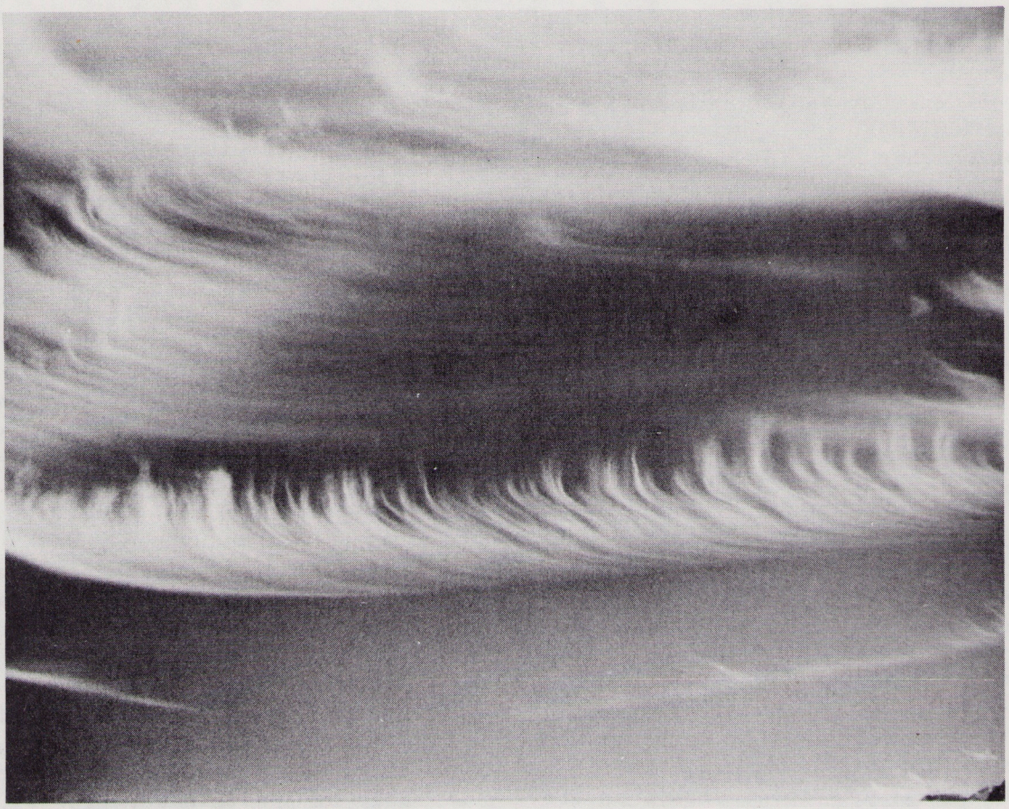
Derham Guiliani reported seeing only about 40 of these butterflies in Saline Valley during the last week in November, 1982, despite their presence in large numbers nearly everywhere through summer and fall. He checked Willow, McElvoy and Hunter Canyons. Willow and McElvoy had no free-flowing water this year, but Hunter Canyon had a goodly stream flow, yet there were few Monarchs to be found. (See Waucoba News, Winter, 1980 for comparisons).

****

Waucoba News

Vol. VII
Spring 1983
4 issues per year

Waucoba News is dedicated to reporting the natural history and research on the eastern slope of the Sierra.



Wind clouds over Owens Valley.

Photo: Zeiss Contiflex, by Enid Larson, Feb. 1983

JUNIPER VS CEDAR

Too often in California the juniper is mistakenly called "cedar". Cedar Flat on Westgard Pass is an example. In botanical terms, there are only 3 species of cedar in the world: one, the Deodar Cedar, Cedrus deodara, is a native of India and is often seen as an ornamental planted tree in Owens Valley; one in Africa, Cedrus atlanticus, with bluish silvery foliage (see east side of Courthouse in Independence); and the cedars of Lebanon, so often mentioned in the Bible. These trees are being cut and the forests there are now depleted of this cedar.

In California there are 3 species of juniper: the California Juniper in the Kern Valley (also in the Great Basin), the Utah Juniper in the Great Basin, and the massive Sierra Juniper mostly occurring on the west side of the Sierra, and reaching large size; also reported from the Inyo Mountains.

Junipers are a long-living tree. They produce modified cones that resemble bluish-purple "berries" with seeds incased in a hard woody seed cover. This tree withstands drier conditions than most other cone-bearers. A specimen near Fresno is listed as "older" than the Bristlecone Pines in the White Mountains. The Utah Juniper is associated with the pinyon pines but its members extend to lower limits than can the pinyon.

True cedars produce cones that stand upright on the branches. The male (staminate) cones make the Deodar Cedar look like candles on a Christmas tree. The seed bearing cone has scales that usually fall to pieces while still attached to the limb, hence mature cedar cones are seldom noticed.

The Incense Cedar in the Western United States is cut as a timber tree. It grows at mid-elevations on both east and west sides of the Sierra but this is not a true cedar inspite of its name. Often planted as an ornamental. In Idaho, along the Lolo Trail, I saw harvested Incense Cedars that were 11 feet in diameter.

-- Enid A. Larson

SECOND ANNUAL LONE PINE CHRISTMAS BIRD COUNT

Lone Pine Christmas Bird Count Dec. 18, 1982 (7:30am-4:30pm). Clear skies, 26°F-53°F, no wind. Coverage 3700'-8500'. 59 party hours - 52 on foot, 97 by car. 128 party miles - 31 on foot, 97 by car. 58 species seen, 1189 individual birds.

Throw 22 birders into a 15 mile circle near Lone Pine for an all day census and what do you get? Lots of fun, 58 species and 1189 individual birds! Beginners and experienced birders worked all available habitat. Skiers and hikers covered pinyon/sage from 7000 up to 8500 feet. Others covered streams, ponds, river bottoms, residence areas and sewage lagoons down to 3700 feet.

Clear, cool weather made for maximum comfort for people, but was too good for waterfowl apparently. Going from 9 species of duck last year to zero this year was our biggest disappointment. However total species counted exceeded last years (57) by one.

Eagles to house sparrows, all were listed to provide good winter base line population data. Most bird census work is done during spring, summer and fall so Audubon Christmas counts provide much of the winter population data for all N.Amer.

It's fasinating to think of the tremendous numbers of birds that leave our area after spring and summer food surpluses are gone. Not able to feed on insects, nectar and ample seeds means entire families of birds simply disappear from Owens Valley. (No swallows, hummers, orioles, vireos, nighthawks, swifts, warblers down to one species: Yellow-rumped, and flycatchers down to one species:Says phoebe).

Which stay? How do they survive? In general omnivorous, extremely well-rounded survivors who will even change their diet and habits remain year round. Seed eaters (sparrows, juncos, bushtits, starlings, black birds) are well represented and are flexible feeders. An aquatic versatile feeder is the omnipresent coot! So our winter bird species are equally admirable, not for their beautiful colors or distant migration routes, but for their unsurpassed survivor skills. And getting together for an all day census with friends that are looking in particular for winter birds is a birding high point for all of us.

-- Mike Prater, Lone Pine

ŧŧŧŧŧŧŧŧŧŧŧŧŧ

The SCARLET LOCO (Astragalus coccineus) was in bloom along Westgard Road, 6500 feet, by March 15, 1983.

George Anderson, Santa Barbara, Ca., reports this LOCO in bloom along the Whitney Portal Road the second week April, 1983.

-- Enid A. Larson

ŧŧŧŧŧŧŧŧŧŧŧŧŧŧŧ

WEATHER IS INTERESTING

Mrs. Dorothy Johnson, Crocker Ave., Big Pine, has kept a weather record of precipitation and daily temperatures at her home for more than 20 years. "Average" precipitation is never meaningful unless the full range of highs and lows are given. She summerized these records from 1961 - 1982:

1 year	less than 3 inches
2 years	3 - 4 inches
3 years	4 - 5 inches
5 years	5 - 6 inches
1 year	6 - 7 inches
1 year	7 - 8 inches
1 year	8 - 9 inches
7 years	10 or more inches

Seasonal precipitation for 1982 - 83 gives promise of exceeding 13 inches as I prepare this report in April, 1983.

ŧŧŧŧŧŧŧŧŧŧŧŧŧ

FOXTAIL PINE
(Pinus Balforiana)

A remarkable article by Jacob Sigg on "Foxtail Pine of the Sierra" is offered as the lead article in Fremontia (Journal California Native Plant Society)Apr.1983.

This pine is unusual in its growth and habitat requirements. Photos by Leonard Bavins accompany the text, showing these trees growing at elevations of 11,000 feet. The northern most limit of this pine on the eastern side of the Sierra appears to be Birch Mountain west of Big Pine.

J. Sigg is in charge of the Native Plant Garden, Strybing Arboretum, Golden Gate Park, San Francisco. Fremontia is available at the Inyo Co. Library, Bishop.

ŧŧŧŧŧŧŧŧŧŧŧŧŧŧ

MIGRATION OF BUTTERFLIES 1983

Derham Giuliani reports that this spring THE PAINTED LADY BUTTERFLIES are migrating in large numbers for the first time since 1973. He saw many in flight; they were moving in a northwest direction near the south end of Death Valley and as far north as Ridgecrest. In late March he saw small numbers of this species flying in the Whipple Mts. This butterfly does not overwinter in Owens Valley, but comes up from the south. In traveling they fly in relatively straight lines without pausing on flowers. Individuals have been seen in Big Pine since early April.

These large migrations are spectacular and most interesting to observe. To make accurate counts: set up a line of known length perpendicular to the line of flight, use a stopwatch or second hand, and a compass for measuring direction of travel. HOW MANY CROSS THE LINE IN A GIVEN LENGTH OF TIME? HOW MANY PER HOUR?

MONARCH BUTTERFLIES are also in migration in southern Inyo County. They winter in Mexico, then come north.

ŧŧŧŧŧŧŧŧŧŧŧŧŧ

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes or a membership ($5.00) in Bishop Museum

Vol. VII
Summer 1983
4 issues per year

Waucoba News is dedicated to reporting the natural history and research on the eastern slope of the Sierra.

Snow line on the Sierra west of Big Pine, May 1, 1983

DESERT WILDFLOWER DISPLAYS

Spectacular wildflower displays occur infrequently and intermittently on the Mojave Desert, in Death Valley, and in the Great Basin. These outbursts of flowers are predictable only when a combination of certain environmental factors are known for the specific area. Among the determining factors are rainfall and daily temperatures that have occurred in certain critical months in autumn and winter, says Rose Strickland who surveyed the literature.

"The real controlling factor in wildflower blossoming is determined by an adaptation of the seed coat, where a chemical inhibitor prevents germination except under conditions which ensure the survival of the seedling. The desert annuals, themselves, have no special mechanisms for dealing with the drought conditions in the desert except to germinate and grow under the most favorable conditions. Unless there is no precipitation at all, some annuals will respond, even at minimal rainfall. The varying amounts of rainfall at differing times followed by varying temperatures determines which seeds will germinate, which seedlings will survive and which desert plants will dominate the spring display."

"Some wildflower species will bloom only in the spring after germination the previous winter, while others will bloom only during hot summer temperatures. The former have relatives mostly in the cooler temperate regions and are the most numerous of desert wildflowers, while the latter's relatives are from warmer temperate and tropical areas and have very short life-cycles." -- Rose Strickland (Reno, Nevada)

This report was based on results of experiments reported by Dr. Fritz Went, Dr. Lloyd Tevis, and J. Beatley and published in the journal, ECOLOGY, 1948-67. Experiments were conducted along with observations made in Joshua National Monument, on the northern Mojave Desert, and on "Nevada Test Site".

This information may help readers to understand the reason that although 1982-83 was a year of high winter rainfall, no spectacular displays were noted in cerain areas in Death Valley, and were spotty on the northern Mojave Desert.

The flowering periods in Eureka Valley are unpredictable since rainfall and temperature measures along with their occuring dates in months of the year are not available for that area. --Prepared for Waucoba News by Enid A. Larson, Big Pine, Calif.

To Linanthus dichotomus

NOW THAT APRIL 'S HERE

The rocky hillside now is
Fragrant with the blooms of the
Flowers that go to sleep in the daytime...
So Flora told me.

Back to childhood and the wonders of the
springtime in Owens Valley
When fields, where Nature still maintained
her ways--
Bloomed with the Purity flower at eventide,
But never to be found in cultivated areas
So mutilated by man in his haste for
More--more--more.

Alice Eastwood, botanist, said that
Children best knew the secrets of the
natural world.
They, in their simplicity,
Called these flowers "Evening Snow."

Memories overwhelm me!
In recognition of my childhood love for all
the out-of-doors,
My father once gathered a great bunch of
these flowers
While he walked the irrigation ditch--
A ribbon of water streaming through
Undisturbed acreage of sage and
Indigo brush--
He brought them to me as his gift.

Fragrance, freshness--
Never bottled by Chanel in Paris--
Filled my room that night.
Morningtime and all the whiteness was gone.
The flowers, each tightly curled with
petals rolled in spiral,
Showed only cones of purple-pink.

"Purity," I cried, "where have you gone?"
Gone forever?
No! At nightfall you returned to me with
all your fragrance.

Oh, wonderment of strange response to light!
A feeling grew within
Irresistibly forcing me onward--
On the pathway of a great unending quest
A search and thirst
To know -- TO KNOW.

Enid A. Larson
1974

Redrawn from Jepson
by Pam McAdoo, 1983

SUGGESTIONS FOR NATIVE GARDENS

WARNING: Gather only seeds either from the plant when seed pods are open or debris from beneath the plant after seeds have been released from the pods. DO NOT DIG UP OR TRANSPLANT SHRUBS! Some shrubs can be purchased from Native Nurseries: Check with: (1) Nevada Native Plant Society, 1530 Sparks, Nevada, 89431 or (2) California Native Plant Society, 2380 Ellsworth St., Berkeley, 94704.

Use seeds from any perennial that is widespread in its geographic distribution throughout Owens Valley.

DO NOT BRING IN SEEDS FROM OUTSIDE THE IMMEDIATE AREA to intermix with natives in Relictual populations here in Owens Valley. The scientific value of the gene pool established in Relict populations needs complete protection!

What plants have been used successfully for Native Gardens in Owens Valley?

Among shrubs that I have grown in Big Pine are:

Perennials

Encelia - has seeded itself
Lupinus excubitus - seeds itself
Lepidum fremontii - long life
Hermidium alipes - seeds itself
Purshia - germinate seeds then transplant seedlings
Sphaeralcea ambigua - apricot mallow, seeds itself once established
Prunis andersonii - wild peach
Mentzelia - Blazing Star, a biennial, seeds itself

After these plants became established, each has seeded in successive years. Encelia seems to thrive best if pruned severly each winter.

Soil conditions seem to be the factor that determines success. Avoid humus buildup. In nature the wind blows away the accumulating leaf litter.

Annuals

Among the annuals: Whispering Bells, (Emmenanthe); Chia (Salvia); Eriastrum; Brown Eyes, (Camissonia), Evening Primrose family, have been successful.

Annuals are best collected by gathering a bucket of decomposing granite from the surface of its habitat and spread thinly on a garden plot that lacks humus. Avoid humus buildup in successive years.

ANNOUNCEMENT

The Lepidopterists' Society has scheduled its 30th annual Pacific Slope Section meeting at Big Pine, August 26-28 at Camp Inyo.

For further information contact: Julian Donahue, Nat. His. Museum, 900 Exposition Blvd., Los Angeles, 90007. (213)744-3364.

BUTTERFLY MIGRATIONS

Tom & Jo Heindel write that THE PAINTED LADY BUTTERFLY was in heavy migration in Saudi Arabia (Dhahran) in late April-May, 1983. Dr. John Emmel verified this as the same species as in Calif. The migration of those butterflies that began in Spring,1983 in Owens Valley suddenly declined before extensive measurements could be made. A new brood is now abundant on flowers in Owens Valley; only a few are in migration.

-- D. Giuliani & E.A. Larson

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514 Volume VII No. 4
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513 AUTUMN 1983
Subscription: Four 9" long stamped self-addressed envelopes 4 issues per year
or a membership ($5.00) in Bishop Museum

Yellow-bellied
Marmot

(Marmola flaviventris)

Sketch by
Dian R. Mawby

Hannah Carey, UC Davis has done a three-year study at a location in the White Mountains in Inyo County California.

Her study investigated the influence of predator vigilance on the feeding behavior of yellow-bellied marmots (*Marmota flaviventris)* in the White Mountains of California. She discovered that marmots spent 10.2% of their foraging time looking up, a behavior which is necessary for predator avoidance but reduces their rate of food intake. She found that more time was spent looking up when alarm calls were emitted by others of their species than in the absence of calls. Vigilance time was reduced when marmots fed in groups, and in areas with many safety burrows and open vegetation. These results suggested that the cost of anti-predator behavior in reduced feeding rates may be minimized by adjusting the time spent in vigilance relative to the risk of predation. Juveniles and yearlings spent more time looking up while feeding than did adults. Juveniles also appeared to be more sensitive to the factors that influenced vigilance than were older animals; this may be due to the greater nutritional demands of young, growing animals coupled with a higher susceptibility to predation. The importance of behavior that reduced the cost/benefit ratio of vigilance during foraging may lie in the selective value of attaining adequate fat stores as rapidly as possible during the hibernator's active season.

Hannah Carey
Univ. Nevada, Reno

An Update on the Junipers of California

Science is a process in which new information is constantly being added. Here is what John Thomas Howell, California Academy of Science in San Francisco has written:

"In the Spring 1983 issue of the Waucoba News you write that "in California there are 3 species of juniper." Actually there are 4 species by present-day count--you omitted the Dwarf Juniper that is with us as a subprostrate creeping shrub. I know of it at scattered stations in the northern Sierra only as far south as Mono Pass east of Tuolumne Meadows (not the southern Mono Pass at the head of Mono Creek, Fresno Co.). There was a fine specimen draped over rocks on the Tioga Pass Road just east of the pass in Mono Co.; I hope it is still there, though it was precariously close to that much-traveled highway.

According to Sudworth (Forest Trees of the Pacific Slope, p. 176) the "Dwarf Juniper is more widely distributed than any other tree inhabiting the northern half of the globe" --a noteworthy fact repeated by Little (Checklist of United States Trees, 1979, p. 154). In its distribution many local races have developed and numerous names, specific and varietal, have been given to them. The name Little accepts for our Pacific oast variant is *Juniperus communis* var. *saxatilis* (the varietal name used by Munz, Calif. Flora p. 63).

In its distribution many local races have developed and numerous names, specific and varietal, have been given to them. The name Little accepts for our Pacific coast variant is *Juniperus communis* var. *saxatilis* (the varietal name used by Munz, Calif. Flora p.63). However, with the eye of a botanical horticulturalist, James Roof would recognize 3 named varieties and several unnamed forms as growing in California and adjacent Oregon (The Four Seasons vol. 4, no. 3, pp. 1-9. 1973)!

"While we are writing about variants in the Dwarf Juniper, we might mention two other variant junipers in California that have been given names. The magnificent venerable Sierra Juniper is distinct enough from the typical Western Juniper to warrant subspecific recognition, *J. occidentalis* ssp.*australis*. It ranges south from the vicinity of Susanville, whereas the typical ssp. *occidentalis* ranges northward to Washington and Idaho.

"In the California Juniper is a distinctive columnar form that Ernest Twisselman and I named for its discoverer, Robert Luthey of Kernville. *Juniperus californica* forma *Lutheyana* is of rare sporadic occurrence in the Sonoran hills bounding the valley of the South Fork of the Kern River in Kern Co. One of these columnar individuals may be seen near the road from Bodfish to Havilah just south of the Bodfish Gap.

"The common name, juniper, that we use is taken directly from the classical Latin name for the plant, *Juniperus*. The common name in Italian is "ginepro" and in French is "genevrier." From these common names comes the English word gin (the liquor, not the cotton-gin!) and the name of the Swiss city, Geneva. The word Juniper appeared in English writings in the 14th and 15th centuries when it was variously spelled Gynepre, Iunipere, or Iunyperis (according to the Oxford English Dictionary). In America, it was spelled Juniper in the 1700's." -- J. T. Howell.

KIT FOX

Vulpes macrotis

Sketch by Dian R. Mawby

A small desert resident that feeds on rabbits, rodents, and insects. It has slender legs and large ears. This mammal is nocturnal, with dens on hilly slopes. It produces as many as 8 young in a litter. The dens have multiple entrances. It lives in Death Valley, Eureka Valley and Deep Springs.

This animal is fully protected in California. Department of Fish and Game placed its distribution in Owens Valley as far north as the southern end of Tinemaha Reservoir.

In April, 1983, a pair was sighted along the Westgard road by Steven Foster, Big Pine. Derham Giuliani confirmed the den location and 8 young were seen each evening. Within one week the pair changed location of this densite and moved. The adult male as well as the female forage and bring food to their young.

****

Pensteman floridus ssp *austinii* was blooming along the Loretta Mine Road just east of the summit of Inyo mountains. (below the summit)

It was an apparent second blooming with 2-3 feet long stems with many full bloom flowers and many buds yet to bloom -- weather willing.

Is this second blooming usual?

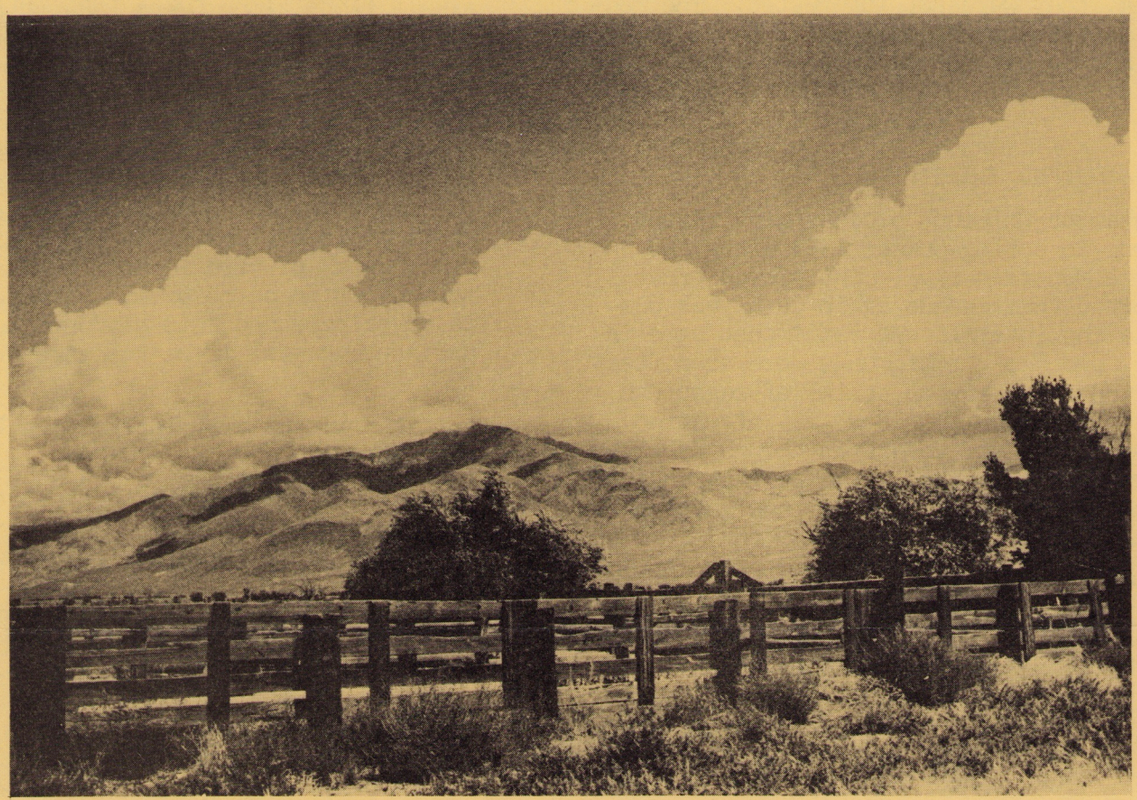
-- Mary Ann Henry
Ridgecrest, CA

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, Ca. 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, Ca. 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

Vol. VIII No. 1
WINTER 1984
4 issues per year

Waucoba News is dedicated to reporting the natural history and research on the eastern slope of the Sierra.



CUMULUS CLOUD BUILDUP OVER BLACK MOUNTAIN
Inyo-White Range
Summer 1983

Photo by Enid A. Larson: looking eastward from Big Pine along Westgard Road. Zeiss Contiflex

GREETINGS
1984

January, 1984 has begun with warm days and weather varied and unpredictable. Accompanying these warm, sunny days have been unusual blooming of plants.

MARY ANN HENRY, reports the following from the southern Inyo-Kern area:

> On January 1, 1984, twenty-four species of plants were in flower in Short Canyon, a desert-facing canyon of the south Sierra. There were fall bloomers such as Corethrogyne and the spring flowering Wallace Eriophyllum. The all-year stream was running full. The intermittant streams on the rocky hillsides were running and the mosses were a beautiful brilliant green.
>
> — Mary Ann Henry

More flower news:

> Charlotte's phacelia (Phacelia Nashiana) was in full flower in a sandy wash in Indian Wells Canyon on January 8, 1984. There were several clumps of the plant with the vivid blue flowers. Spectacular! Not supposed to bloom until May or June.
>
> — Mary Ann Henry

PLANTS

"The new Dudleya calcicola Bartel & Shevock (Madrono, Vol. 30, No.4 pg. 211-218) was collected in Short Canyon May 17, 1983 and June 3, 1983 by Mary Ann Henry. This collection of Dudleya calcicola is the first from the east side and will be placed with James Shevock's collections at the California Academy of Science in San Francisco. Jim Shevock did the determination, has the specimens and is mounting his and mine, (per personal communication 15 November 1983).

And to think those plants have been sitting up in Short Canyon all these years! I have been unable to get anyone to identify them, they were not interested. The Madrono reference he gave me; I have not seen it and he has not sent me the promised reprints yet." —Mary Ann Henry, Ridgecrest

tttttt

THE PANAMINT CHIPMUNK

The Panamint Chipmunk successfully raised young in Spring-Summer 1983 along the White Mountain road. The pinyon trees aborted their seeds again this year despite the intermittent rains that came in Aug. and Sept. Chipmunks were seen feeding on seed-bearing stalks of sagebrush Artemisia from 7300-8500 ft. elevation along White Mt. road even though Rabbitbrush, the usual sought-after autumnal food source, was in flower and setting seed.

November 3, 1983 was the last date on which any chipmunk was seen active in this area; none has been seen since that date along either the Westgard or White Mt. Road. Chipmunks have been thought to be "shallow hibernators" probably becoming active during winter when warm, sunny days prevail. This winter none has been active on such days after many exploratory trips to as high an elevation as 9500 ft. by D. Guiliani and/or Enid A. Larson.

— January 10, 1984

tttttt

BUTTERFLIES

D. Giuliani reports:

Painted Ladies (Vanassa cardui)

These were seen in migration in late Autumn 1983 - flying in a straight line in a westerly direction. Autumnal migration is seldom observed. In early autumn they were moving south, then in late autumn they were flying in a westerly direction and were last seen on Dec. 2, 1983.

Oakley Shields and D. Giuliani are collaborating on a report soon to appear on the flight pattern of this species.

Monarchs

Few were seen in the yard in Big Pine this year.

Thanksgiving period in Saline Valley:

Willow Creek - 55

McElvoy Canyon - 242 (in clusters, 10-30 per group on Creosote shrubs).

Hunter Canyon - 27 (an observer here reported seeing few throughout the entire autumnal period. This low number has been unusual for Hunter Canyon).

These are the only three canyons where the Monarchs have been seen in autumn-winter season.

tttttt

OWENS VALLEY BIRD CENSUS

December 18th marked the third annual Lone Pine Audubon Christmas Count. Ten beginning and expert birders spent hours from dawn to dusk in various groups covering the 15-mile diameter circle around Lone Pine. Habitats ranged from Jeffrey Pine/White Fir forests at 8500 ft. to alkali flats along Owens Lake at around 3600 ft. A record 91 species were seen and total numbers were over 2,700. Results will be published in American Birds and will provide valuable baseline data on winter bird populations. Representing the birder's social event of the year, the count was an educational success. Beginning birders were able to receive a "full dose" of bird identification with more experienced observers. The count is to be repeated this May/June for comparison, or will it be repeated just for fun?

Some of the particularly interesting birds seen were:

4 cattle egrets (2 on the backs of horses)
6 Great-tailed grackles overwintering
A White-headed woodpecker for the second year in a row
5 species of shorebirds along Owens Lake
A Swamp sparrow
A Common Yellowthroat
A Harris sparrow

Audubon wants to encourage anyone interested in birding to please take part in the many Christmas Counts across the country. Just watch your local media around the holiday season.

—Mike Prather, Lone Pine, CA

tttttt

Earl Gann from Bishop, reports his group's count totaled 77 species as they covered Bishop Creek, Round Valley, and Owens River areas.

tttttt

Lucile Adams reported a large flock of Cedar Waxwings in her yard. This species seems to be in groups only sporadically.

tttttt

A Harris sparrow is again in Big Pine in my yard feeding with the White-Crowned sparrows. This species was last seen here in December 1978.

—Enid A. Larson

tttttt

VIII spring

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

Volume VIII
SPRING - 1984
4 issues per year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

HIGH CLOUD OVER OWENS VALLEY
Photograph by EAL - Zeiss Condiflex

To those who raise an eyebrow and ask
Do you live alone?
My answer is:
"Certainly not! I live with the
ants and the spiders."

Book Review

Two unusual books on Natural History and Ecology recently have been published by the University of Massachusetts Press. Not only is the writing by Dr. Dethier a delight but an enormous amount of information has been assembled on interrelationships that exist among kinds of animals living around and in proximity to human habitations. Dr. Vincent Dethier is a skillful raconteur who holds your attention chapter by chapter.

THE ECOLOGY OF A SUMMER HOUSE is concerned with those small animals that unobtrusively have found shelter and protection in a cabin unoccupied by man throughout many months of the winter season in Maine. When a deer mouse carries its young to a new den-site, individual by individual, how does the mother know when all have been relocated? Or has one been forgotten?

This small volume gives, not a listing of animals, but "provides an introduction to some of the exquisite beauty and activities that are so easily overlooked" by man. From this account a reader can gain "awareness and appreciation of the many complex manifestations of life in this world and of our participation in the biological wonders" that can be met with by anyone embarking on a journey of exploration and discovery.

The second volume, Life History of the Tent Caterpillor, will be reviewed in the next issue of WAUCOBA NEWS along with notes on the appearance of great numbers of the immature stages of this insect in our immediate area during this season, 1984.

BIRDS

CATTLE EGRET. Arnold Small in The Birds of California lists cattle pastures as the primary habitate of this species. This bird, a medium size heron-type, is often sighted in Owens Valley. It is an Old World species "first found breeding in 1970 at the Salton Sea in Imperial County where it was first seen in California in 1964." Now it has spread northward the length of the state. Cattle Egrets, Bubulcus ibis, have been naturalized in North America; they feed primarily on insects; often seen perched on the backs of cattle and horses. South of Bishop a group of at least 6 were wading in shallow water where pastureland was being flood irrigated. (late April, first week of May).

BALD EAGLE. In Mid-February, 1984, Luis Parra observed an adult Bald Eagle in the air east of Big Pine, Ca. Two days later this bird was seen in flight southward toward Tinemaha Reservoir by Enid A. Larson.

WHITE-TAILED KITE. One was seen by Enid A. Larson on April 22, 1984 in low flight over a cow pasture in late afternoon as if it was foraging. Band on tail indicated an immature.

BLACK PHOEBE. E. Pollorino reported one seen at her yard in west Big Pine. Another was seen by Enid A. Larson in her yard in Big Pine in last week of February, 1984.

CALIFORNIA LINNET (House Finch) has been in abundance this spring season; flocks coming frequently for free water.

EASTERN KINGBIRD. One came to water in yard on Flower Alley in Big Pine on March 26, 1984. This bird is rarely seen in California.

WESTERN KINGBIRD. This flycatcher has been noted feeding on the ground this spring season; apparently changing foraging habits as a consequence of this very dry spring with few flying insects available.

TOWNSEND SOLITAIRE. Two of these birds were reported in Big Pine in March, 1984; last seen on April 2 when one came to my bird bath and drank. A. Currier had observed this species in a yard on Crocker Ave., Big Pine and had called my attention to it. -- Enid A. Larson

WHITE PELICANS were in flight northward in early May, 1984. M. Foster and D. Giuliani each observed a group of about 50 birds over Big Pine. Wind interferred with their regular flight pattern. The sight of the flight of this species is one of the most exhilarating and pleasing that an observer can see as migrants move along the Owens Valley segment of the Pacific Flyway.

SKYSCAPES

A volume of Cloud Photos will be available for distribution by: June 1, 1984

THE PRESENCE AND ABSENCE OF A SPECIES

Dr. Grinnell in 1920 called attention to absence as being as important as noting the presence and numbers of a species. This year there has been an absence of the flaming masses of SCARLET LOCO blooms along Westgard Rd. Only 2 plants bloomed, both on north-facing slopes, (5000 - 6000 ft. el.).

THE WHITE-TAILED ANTELOPE SQUIRREL continues to be absent along Westgard Rd. (Highway 168 east) for the second year. Only 1 individual has been seen so far in 1984; in an earlier year at least 13 individuals were counted along the same linear distance and at the same elevation.

INSECTS

This year's low rainfall caused most species of springtime desert insects to appear in unusually low numbers. Investigations on the distribution of the dune weevil Trigonoscuta had to be abandoned for this year when I was unable to locate a single specimen at any of several known populations.

The checkerspot butterfly, Charidryas neumoegeni, is a good indication of conditions in the desert during spring. I encountered less than a dozen though it is normally seen in large numbers throughout April along dry washes and dirt roads wherever the Mohave Aster grows.

The situation may be worse south of Inyo County for John Emmel writes "I was out in the Mohave Desert 3 weeks ago in several neumoegeni localities and failed to see any but for a lone male, the lowest numbers of neumoegeni I have ever seen. Desert conditions were also the poorest I have seen for early April. It looked like mid-summer out there. No annuals; and perennials were dying back."

-- D. Giuliani

The World of the Tent Makers by V. Diethier, Univ. of Massachusetts, 1980 with drawings by A. Rorer is an armchair journey into the NATURAL WORLD. This author traces the life history of the tent caterpillar within the total context of Nature; in doing so, he verbally pictures the larger and smaller worlds during the total life span of these small creatures. His wit, biological understanding and keen abilities in observation adds dimension to one's knowledge and makes the reading of this account one of Nature Library's outstanding treasures.

Highly recommended for a most enjoyable few hours of reading.

-- Enid A. Larson

ORDER FROM: The Spellbinder or Northcountry Publishing in Bishop, CA 93514 or Waucoba Press, Big Pine, CA 93513
PRICE: $16.00

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

Volume VIII
SUMMER - 1984
4 issues per year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127

Tents of the Tent-making Caterpillar
Big Pine Canyon May, 1984
Photo by Enid A. Larson

This year the "tent-makers" are abundant. Their tents are large and conspicuous in shrubs in the canyons on both east and west slopes of Owens Valley. A student from Univ. Calif., Los Angeles, has planned intensive investigation of these insects and will furnish more information for WAUCOBA NEWS at a later date.

These caterpillars are the larval stage of a small moth (several known species). Although the adult moth deposits many eggs and many larvae hatch, few reach adulthood. These caterpillars are defoliating both the wild peach and the antelope brush, Purshia, as primary food sources. We await further news from the student investigator from the White Mountain Research Station, East Line Street, Bishop.

For information on the life history of this caterpillar and how it feeds and survives, SEE: THE WORLD OF THE TENT-MAKERS, Dr. V.G. Diethier, Univ. Mass. Press, 1980.

tttttttttttttt

A RANGE EXTENSION FOR CHARLOTTE's PHACELIA

This phacelia, previously known only from Haiwee Canyon was found growing in small numbers in the Coso Range on April 5, 1984. Specimen is now in U.C. Berkeley Herbarium. Identification confirmed by Dr. Lincoln Constance. Additional notes in next issue of WAUCOBA NEWS.

Submitted by: Mary Ann Henry
Received for publication June 1, 1984

S H O R T C A N Y O N

Location

Short Canyon is an east facing canyon of the Southern Sierra Nevada. Map location: Sec. 4, 5, 6 T26S, R38E; Sec. 31, 32, 33 T25S, R38E; Sec. 25 T25S, R37E; Inyokern Quadrangle, Kern County, California.

Fifteen miles of easy driving northwest from the Maturango Museum Ridgecrest, California, takes the traveler to the mouth of Short Canyon where a small stream comes from natural springs fed by the snows of the Sierra. The stream flows down the rocky canyon, falls over a waterfall and sinks into sand. The stream runs all year providing associated riparian vegetation and a watering place for chukar, quail and other wildlife. The car is parked at the canyon mouth and the only way up is over the walker's trail.

Flora

The canyon exhibits varied habitats from both the western Mojave Desert and the Sierra Nevada. The influences of both moist and dry environments allows for high floral and faunal diversity within a small geographical area. Desert plants such as creosote bush. Joshua trees, burrobush and shadscale may be found in close association with pinyon pine, juniper, canyon oak and digger pine.

The slopes of the desert facing canyon are hot and dry in summer and cold and windswept in winter. The coarse granitic, sandy or gravelly soils of the canyon are well drained. There are areas of steep loose soil; rocky hillsides with or without intermittant streams; small grassy meadows near streams and springs; as well as flat lands within the Short Canyon drainage.

There are three rare plants and a new species in Short Canyon.

Camissonia kernensis ssp. kernensis (Kern evening primrose) and Nemacladus gracilis (slender Nemacladus) are listed as rare, but not endangered by the California Native Plant Society (1980). Pholisma arenarium (scaly stemmed sand plant) is listed as rare in California common elsewhere.

The new species, Dudleya calcicola Bartel & Shevock (limestone live-forever) is restricted to the Southern Sierra growing on dry rocky ridges and steep slopes in granitic and limestone soil. (Madrono, Vol. 30, No. 4, Oct. 1983; Pers. Comm. J. Shevock.)

Field studies for the Check List were done 1970-1983, above the second aqueduct between 2800' to 4500' elevation. There are no fewer than 277 species in 51 plant families in the canyon drainage.

To see wildlife, walk quietly, stop frequently, and look carefully. The water is inviting, and the stream is shallow, but disturbing the water can change the water's temperature, and thus destroy many of the tiny creatures living there.

The east side of the Southern Sierra Nevada in Kern County is federal land administered by the Bureau of Land Management. In 1976 the Owens Peak Primitive Area, including the western portion of Short Canyon, was identified and closed to motorized vehicles to preserve the primitive values as well as significant natural and cultural resources. In 1980 the Primitive Area was identified as part of the Owens Peak Wilderness Study Area #158.

Short Canyon is in the Walker Pass Grazing Allotment. The season of use on the allotment is from November 1 through June 30 and range use is flexible according to forage development. The cattle range freely on the canyon bottom in the riparian areas, on the loose sandy hillsides, in the oak grove, and on the flatlands.

Upland game bird hunting in season takes place in the canyon, as well as recreational shooting, plinking, and target practice.

The eastern portion of the canyon drainage above the second aqueduct is Multiple Use Class L (Limited Use) with motor vehicles restricted to existing roads or approved routes of travel.

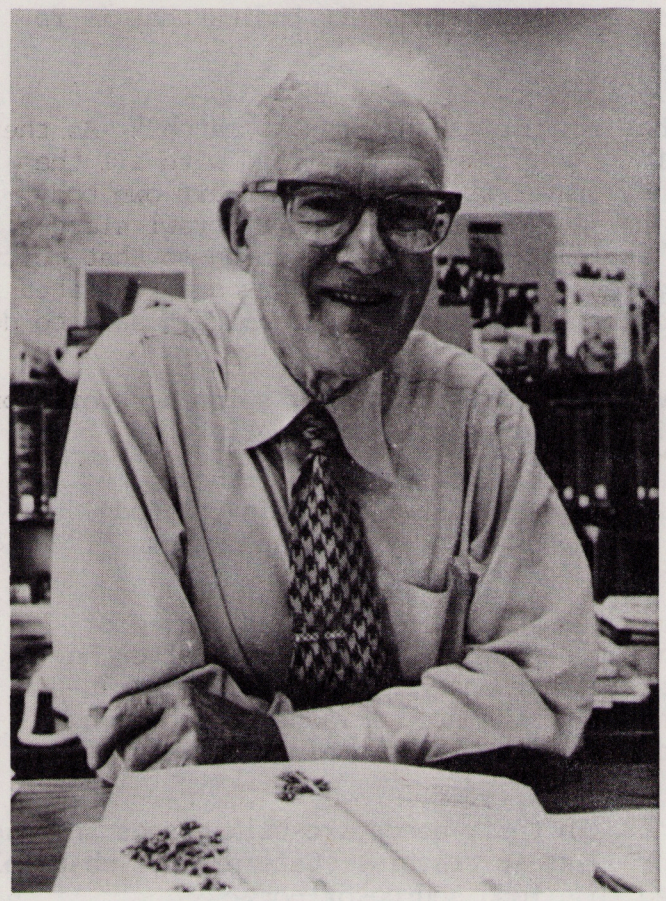
Mary Ann Henry
329 Perdew Ave.
Ridgecrest, Calif. 93555

Waucoba News

Sponsored by The Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped self-addressed envelopes
or a membership ($5.00) in Bishop Museum

Volume VIII
AUTUMN - 1984
4 issues per year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127



TRIBUTE

To JOHN THOMAS HOWELL

A LIVING CALIFORNIA BOTANIST

TOM HOWELL, a frequent contributor to WAUCOBA NEWS, an enthusiastic and indefatigible worker has extended man's knowledge of California plants and their distribution. He has completed more than 50 years of dedicated service as a botanist at the California Academy of Sciences in San Francisco. Always he has been willing to share his knowledge, to lead field trips into the far-reaches of our California landscape, and has gladly provided identifications for specimens sent to him. In so doing, he has endeared himself to many. May his study of SIERRAN FLORA, particularly that of the eastern slopes of the Sierra Nevada, bring richly deserved acolades as he continues his investigations.

We, the readers and editor of WAUCOBA NEWS, wish to express our admiration for his perserverance and to honor him as he enters his 81st year of active life.

TOM HOWELL: we recognize your reverence for life and salute your dedication and achievements. Thank you, Tom.

— Enid A. Larson
Editor, WAUCOBA NEWS

TENT CATERPILLARS (Malacosoma)

In California Insects Powell and Hogue (1979 UC Press) note that there are four species of tent makers in our state. A graduate student from UCLA working out of White Mountain Research Station in Bishop, California has found in preliminary survey that those tent-makers in the Sierra are distinctly different from the species present in the White Mountains.

Dr. V.G. Dethier, University of Mass. has written a delightful life history of the eastern U.S. species of this lepedopteras insect. The following account is from his book The World of the Tent Makers.

Abstract

The adult moth unable to feed emerges in early autumn and lives only a few days. In a short time of 3 days she lays her eggs. Her eggs lie dormant until mid-March. The eggs hatch after surviving winter's temperatures of as low as minus 50°F. Insects survive these low temperatures by producing a chemical in their bodies that is related to "anti-freeze", one of the glycols.

The Caterpillars:

One of the mysteries of nature is "what stimulates the eggs to hatch?" As the young caterpillars leave the protection of the egg they are equipped with all the necessary skills for independent life. They travel about 25 times their own body length per minute. They are equally able to go up or down. As they crawl along a twig highway, their hard outside encasing skeleton limits their growth so that molting becomes necessary as a part of life. The events that follow molting are regulated in time as a condition of the brain that produces hormones. These chemicals seem to determine that the events follow in natural sequence.

In early spring these caterpillars busy themselves crawling, spinning trails of silk, constructing tents and eating. Their trails are used communally.

> "Eventually the entire marvelous machinery would be demolished by scavenger cells, as the caterpillar began to build within its body the muscles to power true legs that could really walk and wings that could free it from its earthbound existence."

> "Millions of years before Ariadne gave Theseus a sword and a clew of thread to guide his return from the depths of the labyrinth after he had slain the minotaur, tent caterpillars had anticipated the stratagem. For them, however, there was no enamored Ariadne. Each spun its own clew to lead it back home from the labyrinthine thickets of twigs in which it foraged."

How do they find their way back to the tent? In their heads are silk glands and each caterpillar lays down an extremely fine thread as it travels. Caterpillars that follow can recognize whether the trail has led to a food source or not.

The population of tent caterpillars are "cropped by weather, starvation, ants, bugs, parasites, fungi, viruses, bacteria, and misadventure in general" in particularly trying years. When summer begins the pattern has already been cast for the year to come. Where the caterpillars are cropped there are "fewer colonies of the next generation."

There comes a day "when the fires of the insatiable appetites of the surviving caterpillars burn low and die. No longer did the silken trails beckon. Instead a great restlessness seizes the caterpillars. Before many other creatures have even begun life or had savored the succulence of the summer's new growth, or have entered upon their period of productivity, the caterpillars are experiencing the twilight of their lives as caterpillars."

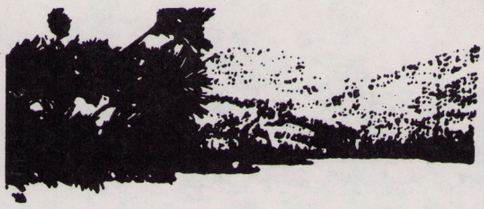
~~~~~~~~

Charlotte's Phacelia (Phacelia Nashiana Jepson) is known from Haiwee Canyon in Inyo County south to Red Rock Canyon in Kern County.

The stunning, deep blue, open campanulate flowers are a spectacular sight if one is fortunate enough to see them in the arid desert-facing canyons below 7200'. The plant grows on slopes of loose granitic sand or gravel in Pinyon-Juniper, Joshua Tree Woodland plant communities.

The Coso Mountain's population of two to three dozen plants was discovered by Ken Pringle, collected by Ronald Henry who brought three plants home to Mary Ann Henry. She identified the plants and carefully pressed them. One speciman was sent to Dr. Lincoln Constance of the U.C. Berkeley Herbarium who confirmed 24 April the plant was indeed Phacelia Nashiana and that "the species is not so narrowly confined as we had feared."

-- Mary Ann Henry
~~~~~~~~

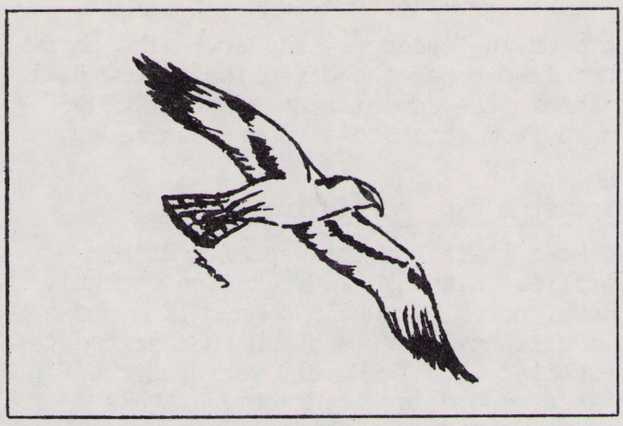


Waucoba News

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a membership ($5.00) in Bishop Museum.

VOLUME IX
Winter - 1985
4 Issues Per Year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127'.



Sketch: Contributed by Dian R. Mawby, formerly a Deep Springs College resident.

OSPREY
(Pandion haliactus)

Arnold Small (1974) writes in BIRDS OF CALIF.: "This bird is primarily a spring and fall transient; a small number winter in the state and some are residents
Range in Calif: length of state, mostly west of the deserts
Breeds: mostly in the northern half of the state on large lakes and rivers
Nest: Ospreys build large conspicuous nests on dead trees in the middle of lakes. The inaccessibility of their nests and the large size of the birds seem to discourage most predators.
Food: Freshwater fish; procured when bird dives beneath the surface
Common name: FISH HAWK

Local sighting: One of these birds seen in flight and hovering along Big Pine Canal, Oct. 21, 1984, at Westgard Rd. crossing (Hwy. 168). Observer: Enid A. Larson, Big Pine, CA.

tttttt

OREGON JUNCO

Autumn 1984, saw first junco in Big Pine (reported by E. Pollerino) on Oct. 10; on Oct. 11, seen on Flower Alley, Big Pine by Enid A. Larson.

WHITE TAILED KITE

Reported by E. Gann December 31, 1984 in West Bishop.

Reported by S. and M. Foster January 9, 1985 along Baker Creek, Big Pine.

INSECTS

The unusually dry spring of 1984 kept most shrubs from putting out green leaves and new shoots; few insects were to be found. Environmental signals (tokens) are unknown to which insects in their resting stages respond that results in their delayed emergence.

MONARCH BUTTERFLIES

In late November, 1984, D. Giuliani, John Lane, Santa Cruz, and Lincoln Brower, Florida, went to Saline Valley, Inyo County, to determine if any of this species of insects were present.
Saline Valley is the only known inland congregating site for this species and was first so reported by D. Giuliani in an earlier issue of WAUCOBA NEWS. That issue had been seen in Australia by scientists working on butterflies.
In November, 1984, the 3 men made the following counts:

Willow Creek	0
McElvoy Cyn.	870
Hunter Cyn.	40

In McElvoy, the butterflies were gathered on Larrea (creosote bush); in Hunter Canyon they were on Willow and Baccharis. These are the largest numbers yet reported for this butterfly in Saline Valley.

— Enid A. Larson

TENT CATERPILLARS

Bill Weaver, a research worker from UCLA now at White Mt. Research Station, Bishop, reports that what was thought possibly to be 2 species of this insect is now recognized as 2 distinct color-forms of the same species, Malacosoma californicum.

— Enid A. Larson, Editor

BOOKS OF INTEREST TO NATURALISTS

Smith, Gladys. - a plant ecologist, author of A Flora of the Tahoe Basin and Neighboring Areas, with up-to-date supplement. Price $10.75. Order direct from Gladys L. Smith, 730 28th Avenue, San Francisco, CA 94121.

WHITE MOUNTAIN RESEARCH STATION
Bishop, California

The administration at this research station has kindly provided the following information for WAUCOBA NEWS: In summary, there are 46 ongoing studies at this time of writing; this involves 104 research workers so registered from January to August, 1984. Fifteen additional tours and field trips involved groups. Among the studies and field excursions, 59 have fallen into the categories listed:

Number	Categories of Study
3	Physics
5	Anthropology
16	Geology
5	Paleontology
15	Animal Natural History
6	Plant Natural History
9	Miscellaneous

A lecture series, open to the public was offered in November - January. The physical facilities have been increased and modernized under the direction of Dr. Hall, Univ. of Calif. Los Angeles. Waucoba News thanks the administrative staff, David Trydahl and Gail Smith, who furnished the data from which this report was made.

BUCKWHEATS
A Range Extension - Eriogonium fasciculatum ssp. polifolium

Heretofore, Inyo County has been the northermost limit for this species of buckwheat. D. Giuliani, in searching for butterflies in the Rock Creek area recently located a group of these plants in Mono County, north of the Inyo-Mono line and east of the Paradise Estates area. A specimen is now on file at the herbarium at the California Academy of Sciences in San Francisco. J.T. Howell verified the identification and wrote that this is the first record for occurrence of this species in Mono County. Lloyd and Mitchell note that this subspecies is known along Westgard Rd. (Hwy 168) and from both Silver and Wyman Canyons in the White Mountains.

EUREKA VALLEY

In August-September 1984 a series of thunder storms washed out many roads in Inyo County, especially in the desert areas. Eureka Valley road to the Dunes was severly washed. This autumn the usually dry playa filled with water by early Sept. Not since 1976-77 has there been water in this lake bed. Soon it was again teeming with crustaceans; their eggs hatched after lying dormant for these interim years. See WAUCOBA NEWS vol. 1, no. 1 1977 (winter).

On the dunes, an abundance of seeds germinated; seedlings began their growth; shrubs put out new growth. Once again, the cycle of life was replenished. Water birds were seen; green algae floated in the shallow water; the crustaceans, Estheria, and freshwater Fairy Shrimp, Branchinecta and Apus reappeared in the mud along the shore.

LONE PINE AUDUBON CHRISTMAS BIRD COUNT

December 15th marked the fourth annual Audubon Christmas Bird Count in Lone Pine. Ten participants spent the entire day roaming from snowy forests to frosty river bottoms. The prescribed 15 mile diameter count area has its center just west of Lone Pine and includes a variety of habitats. Morning weather began cold and clear, but by afternoon a blizzard had begun. The count was a great success, however.

All told, 83 species and 1751 individual birds were observed. Among the rare or uncommon birds were a Black-shouldered Kite (formerly the White-tailed Kite), a Trumpeter Swan, a Red-shouldered Hawk, 4 White-throated Swifts, 7 Western Bluebirds, a Northern Shrike, and a Snowy Plover. Other more common birds seen were 12 Great-blue Herons, 4 Tundra Swans (formerly Whistling Swan), 97 Canadian Geese, 19 Red-tailed Hawks, 2 Golden Eagles, 3 Rough-legged Hawks and 1 Prairie Falcon.

Over 1000 counts were done across North America during the Christmas season in this, the 85th year of Audubon Christmas Counts. Other counts that took place in the Eastern Sierra were Bishop, Mammoth Lakes and Mono Lake.

— Mike Prather

Note: Complete sets of WAUCOBA NEWS are on file at the Bishop branch of Inyo Co. library, at White Mountain Research Station and at the California Academy of Sciences c/o J.T. Howell, botony.

Waucoba News

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a membership ($5.00) in Bishop Museum.

VOLUME IX
Spring - 1985
4 Issues Per Year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127'.

Fossils and Formations of the Lower Cambrian Type Waucoban Section

Inyo County, California

By

Eric Seiple
Sacramento, California

The classic Lower Cambrian section near Waucoba Spring, Inyo County contains a succession of fossiliferous strata that have received worldwide attention from paleontologists because they contain some of the oldest known fossils of complex multicelled organisms. The fossils include trilobites, brachiopods, mollusks, archaeocyathids, echinoderms, and trace fossils (tracks, trails, and burrows). The Waucoba Spring section has figured prominently over the last 10 years in biostratigraphic debates about the proper placement of the base of the Cambrian System....*editor.*

DISCOVERY OF WAUCOBAN SECTION

One of the best Lower Cambrian reference sections in North America can be found less than 50 miles (80 km) from Death Valley, in a wild and pristine setting much the same as when pioneering paleontologist C.D. Walcott first explored in the 1880's. Here, on the western edge of the Great Basin, Walcott discovered important exposures of sedimentary rocks bearing the then oldest known Cambrian fossils. These strata he designated as the type locality for the Lower Cambrian Waucoban Series (Walcott, 1895 and 1908). All biostratigraphically equivalent rocks in North America are correlated with this section.

Walcott named his Waucoban Series after Waucoba Spring, which lies near the Waucoba-Saline Valley Road, a semi-maintained dirt road that runs from State Highway 168, two miles (3 km) east of Big Pine, to Saline Valley. The word *Waucoba* comes from the language of the Paiute Indians, first inhabitants of Inyo County.

The base of the type Waucoban section is found one mile north of Waucoba Spring in the Campito Formation (Nelson, 1971). From its base, the type section extends southeastward and encompasses strata nearly 7,000 feet (2,100 m) thick.

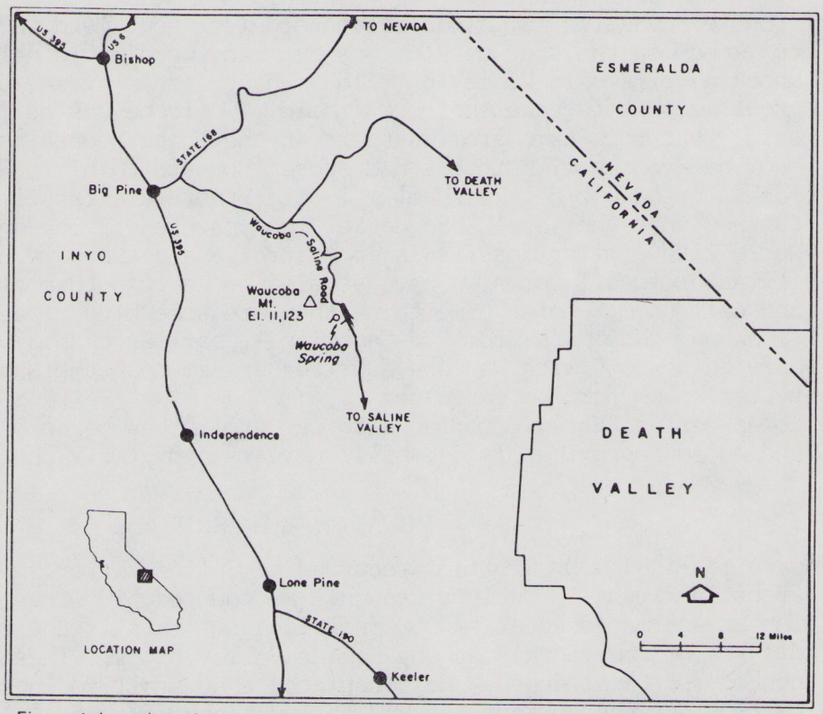


Figure 1. Location of the type section of the Waucoban series, Inyo County, California.

STRATIGRAPHY AND PALEONTOLOGY

Campito Formation

The Campito Formation (named by Knopf, 1918, but redefined by Nelson, 1962, p. 141), oldest of the rock units included in the Waucoban Series, has been divided into two members. The older of the two is the Andrews Mountain Member, about 2,500 feet (760 m) thick, which consists of gray to black quartzitic sandstone and interbedded gray siltstone and shale. It is in a horizon approximately in the middle of the Andrews Mountain Member that the first olenellid trilobites, *Fallotaspis,* are found. This represents the oldest trilobite horizon in North America; this horizon is considered by many paleontologists to be the base of the Cambrian Period. Rocks of the Andrews Mountain Member below this appearance of trilobites are considered upper Precambrian by many paleontologists.

The overlying Montenegro Member yields a wider assortment of trilobites, including *Daguinaspis, Fallotaspis, Nevadia, Holmia, Holmiella* and *Judomia* (Nelson, 1976). It is composed of approximately 1,000 feet (300 m) of greenish-gray shale and quartzitic sandstone, with minor lenticular marly limestones

FOSSIL TRILOBITES from Waucoban series,
dating 570-540 million years ago.

Nevadia from Montenegro Member, Campito Formation (*Plate 3, Figure 1; Nelson, 1976*).

Fallotaspis from the Montenegro Member, Campito Formation (*Plate 1, Figures 1 and 12; Nelson, 1976*). *All photos courtesy of C.A. Nelson, except as noted.*

A FOSSIL STORY

Shorty (Dick) Ashworth, Bishop, who died a few years ago, had a deep interest in the natural world. On one of his field trips he came across a large rock with fossils. He brought the rock to his home on Shepard Lane and asked me what kind of fossils these were. I had never before seen such fossils so I told him that when I went over to the University of California at Berkeley I'd take a small piece and get them identified. There was no question in my mind but that the identification would be forthcoming.

Dr. Donald Savage, a mammalian paleontologist, sent me down the hall with instructions to "knock on the door of Room 8 and a man there would help." In response to my knock a voice said "Come in." The man at a desk arose, held out his hand, not to greet me, but to take the rock I held. While he was at least 8 feet from me, he said "that rock came from Westgard in the White Mountains of Inyo County." I gasped "How did you know?" since I had spoken no word to him. He said "there are no other rocks in the world like them!" I said "there are fossils in this rock and I wanted to know what they are!" "So do we," he answered. "The only other place in the world with similar fossils is in Australia and they are unrelated to any other living or fossil forms we have studied so we lump them altogether in one basket and call them Fucoids. We think they are some kind of a worm!" In age, geologically speaking, they date from Pre-Cambrian -- earlier than 570 million years ago.

I share this story with Waucoba News readers so that the Narrows of Westgard becomes better known for its uniqueness.

-- Enid A. Larson, Big Pine, Ca.

Waucoban Series: Early Cambrian with its trilobites began 570-590 million years ago and ended approximately 540 million years ago. (Dr. John Mawby)

MONARCH BUTTERFLIES

January 13, 1985 - D. Giuliani returned to Saline Valley. He found only 2 or 3 monarchs in flight in McElvoy Canyon. He counted 510 wings on the ground representing an estimated total of 350 individuals. This is the first evidence of massive die-off of individuals at the Saline Valley sites. These wings were undamaged with no body parts attached. He speculated that small rodents may have taken the body parts after the butterflies had fallen to the ground.

What killed the Monarchs? Evidence indicated that low ambient temperature might have been the primary factor. Saline Valley had had a snowfall in mid-December. Glen Akin who keeps the weather record was absent then but his Max.-Min. thermometer showed a low temperature of 22-23°F. These circumstances indicate that the butterflies were subjected to wetness and cold at the same time.

At the Hunter Canyon site a few butterflies were in flight on January 13, 1985. At a pond of water formed from flows of both hot and cold springs, a Cottonwood tree beside this pond had at least 300 Monarchs alive. Nearby, at the mouth of Hunter Canyon, he located only wings on the ground but counts indicated that a minimum of 90 individuals had been present, suggesting movements since the November 1984 counts (see Waucoba News Vol. IX Winter issue for the reported counts of individuals from the November 1984 census).

This is a contribution to the ongoing study of this species in Saline Valley since 1976.

Waucoba News

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a membership ($5.00) in Bishop Museum.

VOLUME IX
Summer - 1985
4 Issues Per Year

Waucoba: A Paiute word for "pine tree"; also highest peak in Inyo Mts., 11,127'.

Bear Poppy
(Arctomecon merriami)

This unique plant shown in the photo at left is perhaps the most seldom SEEN in all of California. It's common name derives from the extensive growth of hairs that lie softly over its leaf surfaces. Its habitat is limited.

Steven and Meredith Foster, Big Pine, came upon a few of these plants growing in the Grapevine Mountains north of Death Valley National Monument in early April 1985. They generously provided this photograph.

Bear Poppy is a perennial and like other plants in Death Valley seems not to bloom every year. A specimen is on file in the herbarium at the California Academy of Sciences in San Francisco, (collected in April 1985.)

-- Enid A. Larson

NON-RAPTOR BIRDS FEEDING ON MAMMALS

Showing a genetic flexibility reflected in hunting behavior results in increased survivability for some non-raptor bird species. The following three accounts tell of such feeding.

The Great Cuckoo, a well-rounded predator, thoroughly enjoys mammals when available. One was seen stalking, capturing and "bashing" to death an otherwise healthy antelope ground squirrel in Death Valley. The animal was then picked apart into bite-sized pieces.

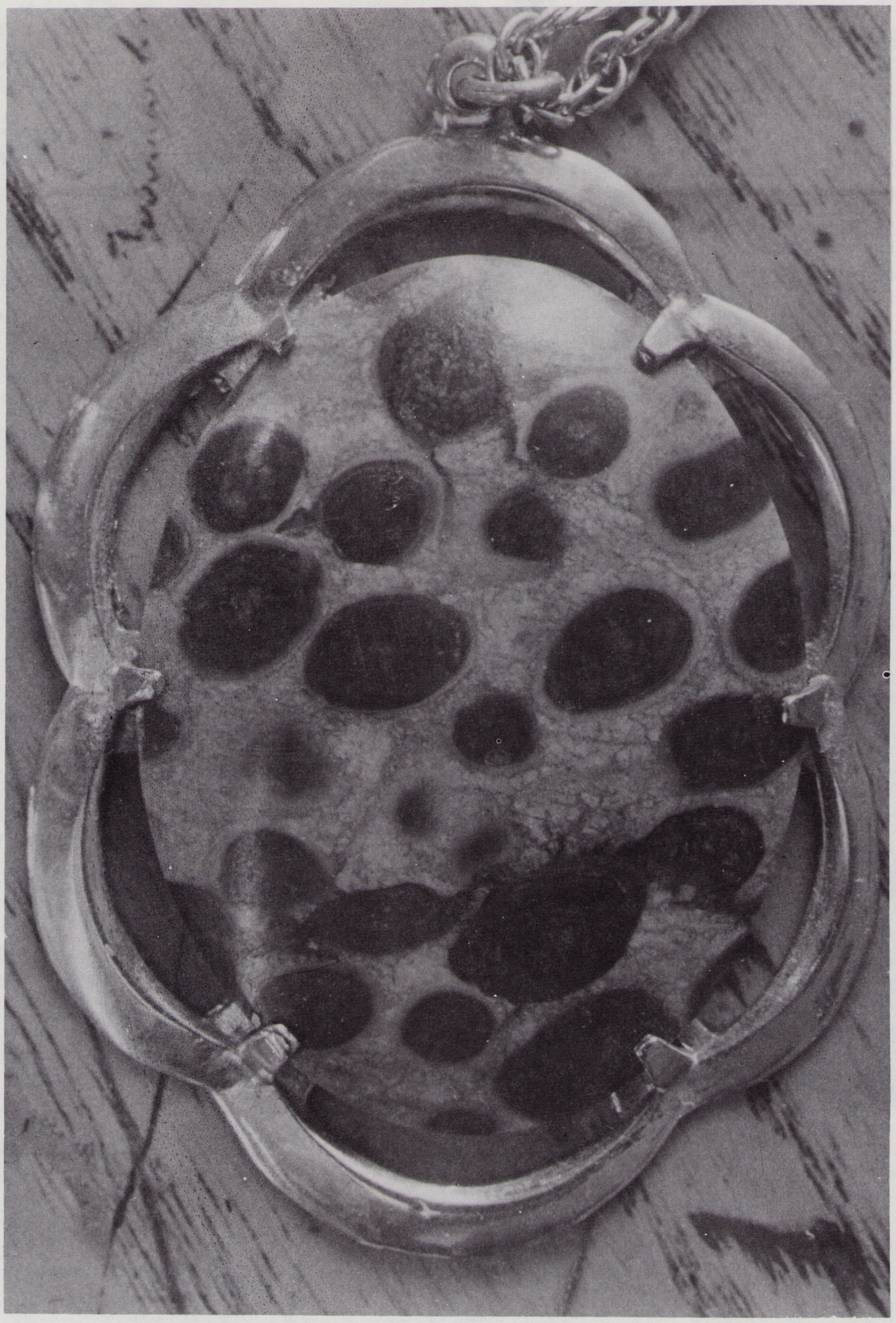
Gophers are fair game for Great-blue Herons. Herons can be seen stooped near fresh gopher diggings waiting patiently for hours. One heron, after catching a gopher and being unable to beat it to death, carried the victim over to a body of water and held the gopher under the water until it drowned.

Recently, a Clark Nutcracker was seen thrashing a golden-mantled ground squirrel and was only dissuaded from finishing the job when a sympathetic onlooker rushed to the hapless squirrel's rescue. Reported by P. Wells, U.S.F.S. at Schulman Grove. She later reported that the squirrel was active the following day.

As in many species of animals, nature rewards flexibility by allowing the genes of those species to be carried on into the future. As a general rule a living species needs to be fed in order to reproduce.

-- M. Prather, Lone Pine

An additional note by Reese, K.P. in the Great Basin Nat. (45) is offered under the title: Three Additional Cases of Predation of Magpies on Small Mammals. (Editor's note)



A Plant Fossil of the Lower Cambrian in Inyo County

After the account of the Waucoban Formation appeared in the last issue of Waucoba News, one reader wrote and inquired about plant fossils.

The earliest known plants are algae which were preserved in Limestone. According to the journal, California Geology,(1984), this Morphologic group (Girvanella) dates from about 600 million years ago.

The above photo is that of a polished specimen of these algae which appear in the rock as oval or spherical bodies. The rough speciman was a gift to me from the late Louis Stewart, Big Pine, and was polished by R.W. Larson, Sr., Salinas, Calif.

-- Your editor, Enid A. Larson

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $5.00 Membership in the Bishop Museum & Historical Society.

VOLUME IX
Autumn — 1985
4 Issues Per Year

DIGGER PINES IN SHORT CANYON AND SAND CANYON

Mary Ann Henry
Ridgecrest

The first conifer in ascending Short Canyon on the east side of the Southern Sierra Nevada in Kern County is the Digger Pine (Pinus sabiniana) growing at 3850 feet elevation.

The Digger Pine is a 50-75 foot high, rangy, open crowned tree with a divided trunk. This pine does not form forests but grows in groups or as isolated individuals. It occurs only in California growing in the foothills of both the Coast Range and the Sierra Nevada. In east Kern County it grows in rocky habitat below the permanent winter snowline of arid desert canyons and ridges.

The sparse, grayish, blue-green 8-12 inch long needles in bundles of three droop from the ends of erect twigs. The Digger produces large and dangerously heavy cones, 6½ - 10½ inches long and 4-6 inches thick which can weigh as much as two pounds or more. The cones may persist on the tree for several years before falling. The inch long seeds are blackish brown with very short wings. The hard shelled, sweet pine nuts were an important food to the California Digger Indians.

A group of Digger Pines grows in Short Canyon on a north facing slope with canyon live oak, Joshua trees and Parry nolina nearby. The trees are well above a couple of springs which support willow and gray rabbit brush.

Another isolated group of four trees grows in a rocky depression sheltered by low hills on four sides. The trees are on the south edge of a sandy, salt grass meadow with small springs. There are other isolated Diggers scattered higher up Short Canyon to 4000 feet or more.

In Sand Canyon to the north a group of four Digger Pine may be found at 3600 feet elevation growing above a wash with grapevines, willow and mule fat.

Farther up Sand Canyon at 3750" is a large collection (too many to count) of Diggers of mixed ages from 6 inch trees to tall mature trees. The largest tree we saw was 14 feet in circumference measured just below where the main trunk divides into six parts. These trees grow in a basin with several drainages and tall hills on all sides just north of the Inyo County line.

REPORTED: Two populations of salamanders have been discovered from canyons on the eastern slope of the Sierra, Batrachoseps and Hydromantes. These await species identification.

THE PINYON - JUNIPER WOODLAND

In the White Mountains of Inyo-Mono this this woodland grows at mid-elevations--between 6500-9500 feet. For more than twelve miles the Bristlecone Rd. traverses this Woodland. In the photos below: left, the skeleton of a dead juniper showing pattern of branching; right, a living juniper; center, at bottom, is a vista showing the spatial distribution of the 3 most characteristic communities of this Woodland: foreground, sagebrush (Artemisia), mid-area, junipers(Juniperus utahensis) background, on the slope is the pinyon forest. In this photo these 3 communities of the Woodland show a characteristic zonation; elsewhere they are often intermingled. I call this Woodland a "pinyon-juniper Wonderland", Pinyon and Scrub jays are commonly seen; also, 2 species of chipmunks, golden mantled ground squirrels and, less frequently, the White-tailed Antelope squirrel.

--Enid A. Larson
Big Pine, California

MONARCH BUTTERFLIES
Saline Valley

On November 28, 1985, D. Giuliani visited Saline Valley and reported his counts:

Willow Creek	1
McElvoy Cyn	15
Hunter Cyn	11

The caretaker in Hunter Cyn said that before the storm, Nov. 10,1985, there were hundreds of these butterflies. They had arrived in Sep-Oct in daily increasing numbers. At dusk they settled in clusters on the cottonwood trees; on warm days they were flying. The storm on Nov 10 was followed by a cold day; then a warm day when the butterflies were seen in the air flying about. By afternoon they all suddenly seemingly left -- no dead bodies, no wings were on the ground.

MYSTERY: What caused every individual to leave at the same time? Where did they go? The passes out of Saline Valley were snow-covered. This sudden vanishing was similar to the sudden disappearance of chipmunks along White Mtn. Road which occurred on the same day.

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $5.00
Membership in the Bishop Museum & Historical Society.

VOLUME X
WINTER 1986
4 Issues Per Year

EUREKA VALLEY
An Unusual Sight

A low fog blankets Deep Springs Valley in the foreground. Beyond lies a long fog bank that fills Eureka Valley. This photo was taken on November 26, 1985, looking eastward from an elevation of about 8,900 feet on White Mountain Road.

What is the explanation for fog in such a dry valley as Eureka? No fog was reported having been in Saline Valley that week; hence, one can only assume that fog in Eureka Valley had moved southward from Fish Lake Valley, Nevada.

--Enid A. Larson

tttttt

The Birds of the Great Basin
Dr. Fred Ryser

ATTENTION: Calling your attention to this natural history account of more than 350 birds that occur in the Great Basin. This volume of 603 pages published in 1985 has recently become available from the University of Nevada Press. Readers will be delighted with the detailed information on life histories, ecology, behavior, and distribution. Excellent photographs are included in this monumental natural history account. Bishop Library has a copy.

A Partial History of a Relict Population

Ponderosa Pines

An intriguing scenic view in Owens Valley is the line of pine trees winding down Big Pine Creek onto the desert floor. These are Ponderosa Pines and make up one of the three existing populations of this species in the eastern Sierra. The easternmost tree is within Big Pine just 1000 feet west of the highway and it seems likely that the town was named for one such individual.

On January 13, 1976, I walked down Big Pine Creek to census the trees. An identical count for comparison purposes was carried out on January 13, 1986.

Although separating Ponderosa from Jeffrey pine can be relatively difficult and time-consuming, Jeffrey seldom grows below, nor Ponderosa above, 7000 feet elevation in this region. For this reason I began at 6500 feet and avoided some 200 trees of possibly mixed species.

Trees were divided into 4 size groups:

s . . . . under 2 feet tall (seedling)
A . . . . 2 to 8 feet tall
B . . . . 8 to 25 feet
C . . . . over 25 feet

Dead trees are not counted. Size was estimated by comparison with my own height. Most trees were obvious at a glance as to category. The few under 10 feet were approached for close measurement. A small amount of error may have crept in while categorizing those close to 25 feet in height.

Number of Trees Counted

Elevation Range (ft)	1976					1986					Percent Gain or Loss				
	s	A	B	C	Total	s	A	B	C	Total	s	A	B	C	Total
4000-4500	0	19	28	106	153	3	5	18	81	107	NB	-74	-36	-24	-30
4550-5065	0	31	48	229	308	0	6	16	166	188	NB	-81	-67	-28	-39
5065-5450	6	41	84	176	307	1	2	24	95	122	NB	-95	-71	-46	-60
5450-5930	2	57	72	127	257	0	15	35	113	163	NB	-74	-51	-11	-37
5930-6500	3	27	36	63	129	20	30	26	72	148	NB	11	-28	14	15
TOTALS	11	175	268	701	1154	24	58	119	527	728	NB	-67	-56	-25	-37

NB = numbers too small to give meaningful percentages.

The figures reflect most strongly the effects of the great flood of September 26, 1982. Since many of the trees counted in 1986 are still in the process of dying, fully half the 1976 population will have died as a result of that event. 60% losses occurred within the elevation interval of 5065 to 5450 feet. The highest area surveyed, least affected by the flood, showed an increase in all but one size category most of which took place in the uppermost 200 feet of elevation.

Overall, the middle size-group (category A and B) underwent the greatest depletion (67% and 56%) and the largest size-group (C) decreased least (25%). This is probably the result of smaller trees growing into the larger size categories and not being replaced at the same rate by seedlings. The low counts of seedlings from both the years indicates an exceedingly low reproductive rate.

--D. Giuliani

* * * * * *

The scientist should be a man willing to listen to every suggestion, but determined to judge for himself. He should not be biased by appearances; have no favorite hypothesis; be of no school; and in doctrine have no master. He should not be a respecter of persons, but of things. Truth should be his primary object. If to these qualities be added industry, he may indeed hope to walk within the veil of the temple of nature.

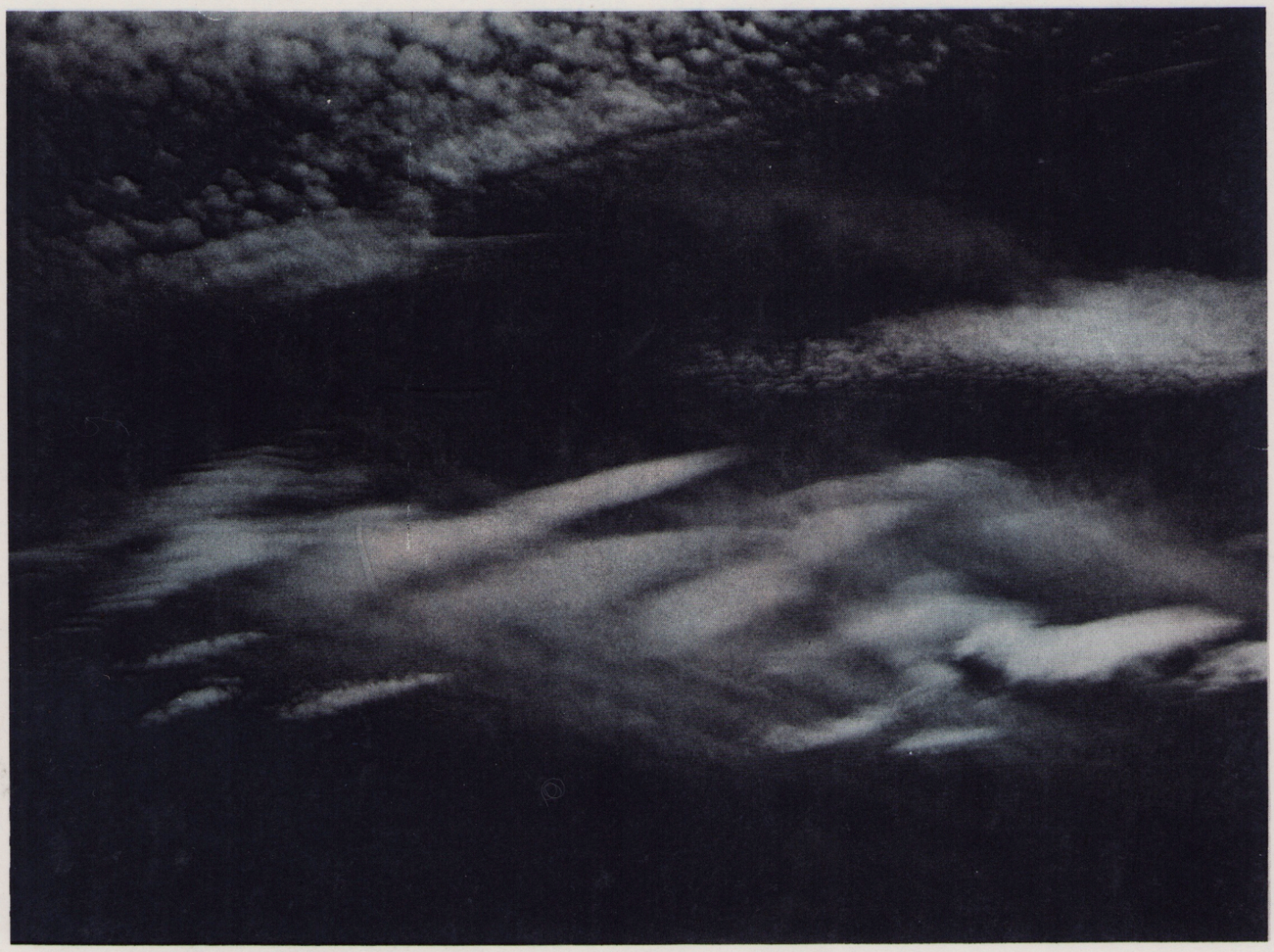
Michael Faraday

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME X
Spring 1986
4 Issues Per Year



CIRRUS CLOUDS AT HIGH ELEVATION
In the foreground are cirro-lenticular clouds forming at an estimated height of 25,000 ft. above
OWENS VALLEY

****

March-April, 1986 brought snow avalanches in many canyons on the eastern slope of the Sierra from Lone Pine Canyon to Lee Vining; also in Yosemite. Damage to forest trees was severe in Big Pine Cyn. and in the Mammoth area.

RESEARCH

On-going research studies of interest include that by:

1) Bill Weaver U.C.L.A. who is investigating Tent Caterpillars.
2) Dr. Baumon, Brigham Young University, Provo, Utah, who is monitoring the aquatic life along creeks in Owens Valley.
3) Dr. Oakley Shields, Mariposa, Ca., together with D. Giuliani are studying the migrations of the Painted Lady Butterflies.

REPTILES

On May 18, 1986, an orange colored rattlesnake (Crotalus Mitchelli) was lying on the pavement of Westgard Rd., elevation 4500 feet.

A sidewinder was reported at Steward Ranch east of Big Pine in late April.

Steven Foster of Big Pine sighted two mating rattlesnakes (Crotalus Mitchelli) in northwestern Eureka Valley in May.

BIRDS

Few warblers were seen in Big Pine during the warm winter of 1986.

A large flock of WESTERN TANAGERS arrived in the first week of May. They spent a few days in Black Locust and fruit trees where aphids were abundant.

An ABERT'S TOWHEE was reported in late May in a yard in West Big Pine (E. Pollarino).

*WHIMBREL: One of the Curlews. Sightings of 2 of this species by E. Gann at Klondike Lake; also at least 5 Whimbrels were seen along west side of the Owens River near Laws by Tony Shelly who made a series of photos of these birds. These were shown on Bishop's Channel 12 TV program. Birds are still being seen in mid June.

WILDFLOWERS

May 1986 has produced a super abundance of flowers in the washes of Westgard and Waucoba Roads. Among the display are:

Brittle bush (Encilia)
Primrose (Oenothera avita)
Prince's Plume (Stanley elata & S. pinnata)
Mojave Aster & Apricot Mallow
Bitterbush (Purshia) in June is now in heavy bloom on the slopes along White Mt. Road at higher elevations.

Meredith Foster reports annuals in heavy blooms along McMurray Rd. west of Big Pine (near Crater Mt.).

The orange/yellow Mariposa lilies are in full bloom along a side road north of Joshua Flat, June 17, 1986. Reported by S. and M. Foster.

Rapid growth of cones of pinyon pines 8000 - 8800 ft. el. along White Mt. Road is occurring June 1986. Will they abort their seeds or will there be a heavy crop?

BUTTERFLIES

In the 3rd week of May in the White Mts. the Painted Lady Butterfly was seen in large numbers flying eastward. D. Giuliani, Entomologist, investigated and found direction of flight varied. North, west, south and east were reported by observers in the Bishop area. He traced these flights back to a common center and located a 3 square mile area from which they were radiating. The food plant, Amsinckia (Borage family) was abundant. Where this plant was still in flower butterflies were feeding and not in outward flight.

This butterfly comes north from Mexico and in some years reaches Canada. The last heavy migration of these butterflies in Owens Valley was in 1973 when numbers were calculated to be in the millions. Scientists are studying this species and trying to find out what determines their flight patterns.

MAMMALS

In the Pinyon-Juniper forest golden-mantled squirrels are to be seen (after an absence of about 5 months) running across the pavement or standing on a berm at road's edge along White Mt. Road. (May 1986).

Only occasionally is either or both of 2 species of chipmunks to be seen between the narrows and Sierra Vista: the sagebrush chipmunk that runs with tail held vertically and the panamint chipmunk seen most often in rocky areas.

In Nov. 1985 both of these chipmunks were out of sight; none was seen again till March 3, 1986 although repeated observational trips were made and snow did not cover the ground.

The last week in May gave the first sighting of this season's juvenal golden mantled squirrels. By June 10 a young of Panamint chipmunks was seen. One called west of the narrows on a north facing slope; sighting of another juvenal chipmunk was near Black Mt. Rd. junction.

A census count of these chipmunks and squirrels is made weekly along White Mt. and Westgard roads by Enid A. Larson who is gathering research notes on these species. Natural history notes are recorded on the known locations of chipmunks by D. Giuliani who spends many days in the field in the Inyo-White Mountains.

†††††††††††††

Additional Notes

A. Small in BIRDS OF CALIFORNIA says: Whimbrels are winter visitors and spring and fall transients. They range in California the length of the state.

E. Boothe in BIRDS OF THE WEST says the Whimbrel breeds in Alaska and migrates all along the Pacific Coast. The nest is a depression in the tundra - with 4 eggs.

Feeds by probing with its long curved bill in mud along shores and estuaries. Formally this bird was known as the "Hudsonian Curlew" (Numenius hudeonicus). It has a shorter down-curved bill than the Long-billed Curlew.

WAUCOBA NEWS

WAUCOBA: A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME X
Summer 1986
4 Issues Per Year

Pen & Ink drawing by Peggy Gray. See page 2.

THIS ISSUE OF WAUCOBA NEWS IS DEDICATED TO THE MEMORY OF DR. WES FERGUSON

Before his untimely death, March 24, 1986, he was engaged for many years in Tree-ring research among the ancient Bristle-cone pines in the White Mountains (Inyo-Mono). He was on the faculty as Professor of Dendro chronology at the University of Arizona in Tucson, and had made many field trips to the present-day forest as well as coming to collect ancient wood from no-longer-living trees at higher elevations above Schulman Grove.

Also he found fossil middens of woodrats that helped date some of the older wood until an unbroken record of climate changes became known that dated some of the non-living trees to more than 8000 years old. Often I had met him along road-side on White Mountain Rd. where he always stopped for a friendly chat.

Wes Ferguson contributed many research papers to the present understanding of some of the biological history of the White Mountains. All who knew him person-ally now feel his loss and revere his memory.

-- Enid A. Larson, Editor

RECENT PUBLICATION OF HIGHLY RECOMMENDED BOOKS

1) The Mono Lake Committee has reprinted The Quaternary History of the Mono Valley, California, by Israel C. Russell, first published in 1889. This volume is a classic and is unusually well written. David Gaines writes: "A century has passed since one of America's most brilliant geologists, Israel C. Russell, last walked Mono Lake's shores. Russell saw grandeur where others saw desolation and (he) forged a literary style equal to his vision." He "blends science with prose . . . vivid and powerful."
Artemisia Press - Box 119, Lee Vining, CA 93541.
Price: 9.95 plus 1.50 postage and handling. (Add 6% sales tax in California)

2) A second book reprinted by the Mono Lake Committee is The Distribution of Birds of California by Grinnell and Miller, first printed by the Cooper Club in 1944.
Artemisia Press - Box 119, Lee Vining, CA 93514.
Price: $18.00 for paperback, $25.00 in hardback. Add 6% tax in California.

3) Natural History of the White Inyo Range, Eastern California and Western Nevada and High Altitude Physiology: University of California White Mountain Research Station Symposium. Vol. I, August 23-25, 1985. Subjects:

Astrophysics	Biology
Geology	Physiology
Geomorphology	Archaelology

Available either directly from White Mountain Research Office in Bishop, or, write : White Mountain Research Station, 6713 Geology Bldg., UCLA, Los Angeles, 90024.

†††††††††††††††††††

INSECTS

Helen Keough discovered a large moth in her garage near Big Pine. Its wing spread was more than 6 inches (150 mm). According to Holland's The Moth Book (1968), it belongs to a genus of large moths most in evidence in the tropics of the New World. With but one species in the United States, Erebus odora Linneaus, it has been found as a straggler in the Northern portions of the U.S. and has been collected even in Canada. See colorplate XXXVII for illustration.
Essig (Insects of Western No. America) describes it as a "huge dark brown moth with forewings marked with an eyespot shaped like a comma and the hind wings each with a double eyespot. The female has a double irregular white band across the middle of both pairs of wings; the male lacks this band.
A tropical species that ranges northward from So. and Central America, it is commonly known as "the giant noctuid." This moth is apparently a rare visitor in Big Pine. The food plant for its larval stage is not available to Waucoba News at this time of writing.

BIRDS

Steven Foster of Big Pine sighted the fall migration of the Pelicans, pointed south, over Crater Mountain on October the 26, 1986.

††††††††††

The sketch of White Mountain Peak was penned by a Bishop artist, Peggy Gray. Her packets of notepapers may be purchased direct from her at Mt. Tom Road, Bishop, CA 93514, or from The Happy Dragon, West Line Street, Bishop, CA 93514.

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long, stamped, self-addressed envelopes, or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME XI
Winter 1987
4 Issues Per Year

The Sierran Crest, looking west from Big Pine, showing snow line, March, 1983

****

Seasonal precipitation (July - June) at Big Pine, 1986-87 is 1.24 inches recorded in a standard rain gauge by Mrs. Dorothy Johnson, Sr., Crocker Street. This is now one of the driest seasons on record.

****

READINGS: 1. An unusual tuskless fossil mammal from Fish Lake Valley was reported by John Mawby in The Nevada Archaeologist, Vol. 5, No. 6, 1986.

2. Merriam's Chipmunk, Part II, 1986, Larson, is now in print and available for ordering from Waucoba Press, Box 269, Big Pine, CA 93513. A copy is available at Bishop Library. Price $18.50 plus tax and handling. PBK, 312 pg., 21 photos.

3. Waucoba News Vol. X, Autumn, will contain the Index for vols. VI-X. This has been delayed due to illness of this editor.

BISHOP TEMPERATURES AND PRECIPITATION
from 1951 - 1980 by months
(THIRTY YEAR AVERAGE)

TEMPERATURES

	MAXIMUM	MINIMUM
Jan	53	21
Feb	58	26
Mar	63	30
Apr	71	36
May	80	44
June	90	51
July	98	56
Aug	95	54
Sept	88	47
Oct	77	37
Nov	64	28
Dec	55	22

PRECIPITATION

Jan	1.32
Feb	0.98
Mar	0.43
Apr	0.31
May	0.30
June	0.11
July	0.19
Aug	0.11
Sept	0.18
Oct	0.17
Nov	0.49
Dec	1.02

ŧŧŧŧŧŧŧŧ

PINE NUTS

In the autumn of 1986 an enormous crop of nuts matured on the pinyons in the White Mountains. Not since 1972 have these trees produced viable seeds in quantity.

ŧŧŧŧŧŧŧŧ

BRISTLECONE PINE RESEARCH

An item appeared in a recent California newspaper concerning the research from the tree ring laboratory at Tuscon, Arizona. This report indicates that the growth rings of the Bristlecone Pines in the White Mountains have put on more growth than in any preceding century. Scientists have correlated this pattern with the increase of carbon dioxide in the atmosphere, especially with those carbon dioxide records from Antarctica.

CHIPMUNKS
AND
GOLDEN MANTLED SQUIRRELS
IN THE
WHITE MOUNTAINS OF INYO COUNTY
1986 - 1987

Fresh chipmunk tracks this winter over the snow indicated a high level of activity inspite of unfavorable weather. They were seen active in light rain and in light falls of snowflakes.

My records show that in some years these chipmunks and golden-mantled squirrels become inactive (1985) whereas in other years they are abroad and remain active above ground all winter. Evidence indicates that temperature and weather are not the direct factors to which these animals are responding.

This irregularity in annual patterns of activity poses several interesting questions for which no answers are yet available. The need for more research is clearly indicated. Suggested avenues of exploration include: 1. quality of food: pine nuts, large Rabbit Brush, Sagebrush. 2. Breeding season: in 1986 all indications point to these squirrels having produced both spring and late autumnal litters in this area of the White Mountains.

-- Enid A. Larson

ŧŧŧŧŧŧŧŧ

BIRDS

Audubon Christmas Count 1986

Bishop -- 56 Species
Ridgecrest -- 72 Species
Kernville -- 117 Species

Thanks to: Earl Gann, Bishop and Ron Henry, Ridgecrest.

Dave Gaines Reports

TROPICAL KINGBIRD. 9/20/86, near junction of Hwy. 395 and lower Rock Creek Road south of Tom's Place. I believe this is the first sighting in the Sierra Nevada or Mono or Inyo Counties.

COMMON TERN. 10/8/86, six immatures, mouth of Rush Creek at Mono Lake. I believe this is only the third Mono County record.

RUFF. 10/12/86, an immature female (really a REEVE) at Crowley Lake Reservoir near mouth of Owens River. Probably the first record for Mono or Inyo.

MORE ON BIRDS

D. Giuliani Reports

Three EVENING GROSBEAKS in yard at 174 Flower Alley, Big Pine on March 6. This species was last seen at this address in October 1972. Other birders in Big Pine have had sightings of this species at later dates.

ANNA HUMMINGBIRDS were reported in yards in the week of December 28, 1986. (E. Pollorino; M. Thomas; E.A. Larson).

RUFOUS HUMMINGBIRDS (bronze) were seen in the week of March 15th in Big Pine, 1987.

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME XI
Summer 1987
4 Issues Per Year

FISH SLOUGH

Aerial photo provided by Phil Pister, Dept. of Fish and Game, taken at (ca) 2000 feet. In lower right the hillside shown has been greatly damaged from excessive ORV use.

CONGRATULATION to Phil Pister for being selected to receive national recognition for his leadership. He received a special award by the National Conservancy at their annual meeting in September, 1987, held in Salt Lake City, Utah.

Digger Pines in the Wintertime

Indian Wells Canyon, an east facing canyon of the Sierra Nevada in Kern County, California, was visited Jan. 18, 1987. The visit was in response to the article by Bill Ciesla in AMERICAN FORESTS MAGAZINE (Jan/Feb 1987), "The Digger, California's Odd Ball Tree", where he states the tree grows on the western slopes of the Sierra Nevada, 1000 to 3000 feet elevation.

Digger Pines, (Pinus sabiniana), do indeed grow on the east side of the Sierra Nevada in the east facing canyons and on the ridges facing the desert. (WAUCOBA NEWS, Autumn 1985). We found the Digger Pines of mixed ages in Indian Wells Canyon drainage growing from 5250 feet elevation on north and south slopes to as high as 6100 feet elevation at the base of rock ridges.

The trees had a luxuriant appearance on this winter day. The needles were green, erect and glistening in the sunshine exuding a pleasant aroma. Some needles were 14 inches long.

Digger Pines are coping with the aridity in the summer time. The needles are light gray-green and droop, giving the tree a transparent look.

Who said you can't botanize in the winter time with a dusting of snow on the north facing slopes?

-- Mary Ann Henry

BIRDS

Rufous-sided Towhee: Range in California ... absent only from the highest mountain area and the south eastern deserts. -- Arnold Small, Birds of California, 1974, pg. 133. However, the same species of towhee was sighted by Jan Hart and Tony Kerwin, stationed at Barcroft, 12,500 feet el., on Sept. 28, 29. 1987.

INSECTS

Monarch butterflies were scarce in Saline Valley this Nov. 1987. D. Guiliani reported 7 at Willow Creek, 0 at McElvoy Cyn, and 3 at Hunter Canyon.

On July 25, 1987 Dr. John Emmel and Gordon Pratt collected the butterfly, Lycaeno phlaes, on the eastern slope of the White Mts. This is the first record of this species from the White Mts although the food plant, Oxyria digyna, has been known previously.

The California Tortoiseshell butterfly was reported in large migration this autumn (1987) on the western slope of the Sierra by Oakley Shields.

SALAMANDER

Hydromantes population was located below 6000 feet el. in the Eastern Sierra by D. Guiliani, on Sept. 23, 1987.

Correction:

The big Pinenut year of 1986 in the White Mountains followed the big pinenut year of 1974, not 1972 as stated in the last issue of Waucoba News.

MANY THANKS

My thanks to all the kind people who sent cards and letters in the weeks of my recuperation.

-- Enid A. Larson

CHIPMUNKS

In August, 1987, we (Larson & Giuliani) observed the harvest by chipmunks of unopened (green) flower clusters of Rabbit Brush at the higher elevations in the pinyon-juniper woodland along White Mt. road. In September and through October this harvest continued with enormous accumulations of discarded debris (duff) beneath the shrubs. Nearly all bushes were deflowered whereas in previous years the harvest was selective and only certain shrubs were used.

Frequently on our census counts along this road, two and three chipmunks would be seen harvesting in the same shrub; sometimes both the Panamint and the Sagebrush chipmunks were only inches apart near the tops of shrubs. No aggression was shown.

Census counts were unusually high and juveniles of both species were in the population in early autumn, indicating late breeding. These counts were made from 6000 ft. el. at the spring on Westgard Rd. to 9500 feet along White Mt. Road, and give total sightings (up and down) at approximately 15 miles/hour car speed:

MONTH	1987	1986
August	71	12
September	277	7
October	200	14
November	1	44
December	?	43

The drought that was recorded for 1986-87 has continued into this first one-half of 1987-88. The unexpected high rise in chipmunk numbers in autumn, 1987 possibly reflects the high production of pinyon seeds in autumn, 1986. At this time of writing, no chipmunks of either species are abroad along White Mountain Road.

-- Enid A. Larson

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME XII
SPRING 1988
4 Issues Per Year

Westgard Road
Looking southwest through the Narrows to the Sierra Nevada

****

NOTES ON THE SQUIRREL FAMILY IN THE WHITE MOUNTAINS

In the pinyon-juniper woodland of the White Mountains of Inyo County four species of the squirrel family live in habitats that overlap. Altitudinally there tends to be both zonation and habitat sharing. At 7500 feet elevation along the White Mountain road, all four species occur.

The Panamint chipmunk ranges throughout the entire woodland from as low as 5800-9000 feet.

The Sagebrush chipmunk along Westgard road comes to the Narrows at (ca)6800 feet and continues upward to 9500 feet and on beyond the woodland to as high as 13,000 feet. (D.G. sighting, 1987).

The White-tailed Antelope squirrel ranges from the floor of Owens Valley at 4000 ft. to about 7500 feet.

The Golden-mantled squirrel may be seen from 6500-9500 ft. in this woodland. It continues well beyond the Bristlecone forest at above 11,000 feet. This is the most frequently seen member of the squirrel family at Schulman Grove in the Inyo Forest.

Continued . . .

In their journeys and foraging there are frequent opportunities for inter-specific meetings of individuals, yet hostilities have been rarely sighted while avoidance of direct confrontation is most frequently observed. Aggressive chases are sometimes undertaken. In chipmunk/chipmunk aggressive chases the Panamint chipmunk has been the pursuer. The smaller Sagebrush chipmunk easily out-runs its pursuer; the Panamint chipmunk infrequently is pursued by the White-tailed Antelope squirrel; also it is pursued, seasonally, by the larger Golden-Mantled squirrel.

Many more examples of mutual tolerance have been seen than aggressions. In Autumn often both species of chipmunks harvest in the same Large Rabbit Brush. The Antelope squirrel and Panamint chipmunk often harvest from the same Russian Thistle, one in the top and the other on the ground beneath the shrub.

The extension of body stripes characterize and serve to identify these members of the squirrel family. Each of these squirrels have their stripes limited to their backs whereas the stripes on the chipmunks extend forward on to their faces.

In running across flat surfaces the tail of the Panamint chipmunk is held horizontally whereas the Sagebrush chipmunk carries its tail upright in vertical position.

The White-tailed Antelope squirrel is well named. It flicks its white tail rapidly when disturbed. The Golden Mantled squirrel is often called "Copper-head."

Although 20 plants have been identified in the White Mts. from which the Panamint chipmunk harvests developing seeds, more than 70% of these 20 involve only 4 species: pinyon, juniper, sagebrush and Russian Thistle. There is seasonal use of these food sources. Pinyon seeds are harvested throughout an entire year when this pine produces a viable seed crop. Large Rabbit Brush is an autumnal source for both species of chipmunks. These chipmunks may be seen from September to November feeding voraciously in or beneath these shrubs that border Westgard and White Mt. roads.

This report is compiled from 17 years of recorded observations by D. Guiliani and Enid Larson.

-- Enid A. Larson

****

PONDEROSA PINES OF THE EASTERN SIERRA

The Winter 1986 issue of Waucoba News reported on a census of the Ponderosa Pines along Big Pine Creek. Those figures showed that there had been a 37% decline in numbers since an identical census was made ten years earlier, primarily as a result of a destructive flood in 1982.

A total of 5 of these relictual populations of Ponderosa pine are now known from the eastern Sierra and it is doubtful that more will be found here. During 1986, from January 13 to February 7, I made a count of each population in the same manner described in the above-mentioned report. Trees were counted from their lowest occurance up to about 6500 feet elevation beyond which Ponderosa begins to be replaced by the similar-appearing Jeffery pine and hybrids of the two species.

Trees were divided into 4 size groups:

s . . . . under 2 feet tall (seedlings)
A . . . . 2 to 8 feet tall
B . . . . 8 to 25 feet
C . . . . over 25 feet

Location	Elevation Range (ft)	Number					Percent			
		s	A	B	C	Total	s	A	B	C
Rock Creek	4600-6400	120	303	244	908	1575	8	19	15	58
Bishop Creek	4300-6400	3	5	71	294	373	1	1	19	79
Big Pine Creek	4000-6500	24	59	119	528	730	3	8	16	72
Independence Cr.	4600-6500	27	54	67	283	431	6	13	16	66
S. Fork Oak Cr.	5900-6500	7	14	12	76	109	6	13	11	70
Totals	4000-6500	181	435	513	2089	3218	6	14	16	65

****

BIRDS

Taken from the Eastern Sierra Audubon Society 1988 - Sierra Wave Chapter. . .
"The Annual Christmas Bird Count gave the following totals:

BISHOP -- 63 species. Two unusual sightings were a Virginia Rail and a Wilson's Warbler.

LONE PINE -- reported 74 species with a total of 1393 individual birds.

DEATH VALLEY -- reported 50 species including the rarely seen in California Ruddy Ground Dove.

In the count of 1986, 2 birds, natives of Asia, were seen in California for the first time: a Brown Shrike, and an Oriental Goldfinch.

CHINA LAKE reported -- 83 species, 6169 birds counted.

Thanks to Mike Prather, Earl Gann and Ron Henry who provided the above information.

WAUCOBA NEWS

WAUCOBA: A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME XII
SUMMER 1988
4 Issues Per Year

SALAMANDERS

This photo of Hydromantes sp? was taken by D. Giuliani while he was exploring the canyons of the Sierra and White Mountains in 1988.
(Enlargement and print courtesy of the California Dept. of Fish and Game).

Salamanders are among the oldest of all land vertebrate animals. In geologic time they date to the Mississippian Period, estimated at about 300 million years ago. Long before the Age of Reptiles this group of amphibians in antiquity left the water and began a terrestrial life.

There are two distinct groups living today -- those with lungs and those without lungs. Those without lungs take in oxygen through their moist skin, hence are to be found always living near water but not in rushing streams. Instead, they are limited to seeps and springs, cracks in granite rocks, crevices and sometimes in old mine shafts.

It is surprising that an animal so dependent upon keeping its skin moist in order to obtain its oxygen is actually living in the arid environment of Owens Valley. How do they survive? How long have they lived in these Sierra Canyons? These are questions that remain unanswered at this time.

These web-toed, lungless salamanders belong to the genus Hydromantes and are a near relative of Batrachoseps which is also lungless. Both are established in Sierran Canyons. Individuals of each genus have been found between 4100 - 8000 feet, living on the eastern slope of the Sierra Nevada. Since these animals are nocturnal in their habits they are seldom seen.

There are three species of Hydromantes known in California and two species of this genus living in Europe.

-- Enid A. Larson

MISCELLANEOUS NOTES

June 20 1988 - A heavy thunderstorm arrived in late afternoon bringing almost 0.25 inches of rain to Owens Valley to break this unusually rainless spring.

In checking the Sierran habitats for Salamanders, D. Giuliani reports two genera (Batrachoseps & Hydromantes) are present in the one canyon.

He also collected a specimen of narrow leaf poplar (Populus angustofolia) from a small clump growing in Scatar Canyon. This record probably is a range extension.

The shrub Dedekera, growing on the slope in Coldwater Cyn., Mono Co. is probably at its northern most limits of its geographic range.

Both species of chipmunk in the White Mts., (E. panamintinus and E. minimus) continue to be seen in low numbers only. Dr. M. Morrison, Univ. of Calif. reports low numbers of the Pinyon mouse (Peromyscus truei) in this spring of 1988.

Bill Hayes, Bishop, tells of seeing several marmots foraging in Dead Horse Meadow in the White Mts. in mid June. This is at a lower elevation than usual for this species of the squirrel family (Sciuridae).

BIRDS

Evening Gorsbeaks: Lynn Crosbie, librarian, reported a flock of 14 of these birds in Rolling Green. In addition one was seen as a road kill along Old County Road west of Big Pine. To identify this bird, look for the heavy bill; its black and white and yellow markings are distinctive.

Long-billed Curlew: Two observers reported seeing this Curlew this spring (1988) on separate occasions. They were standing along irrigation ditches on alfalfa ranches in Chalfant Valley.

Western Tanagers: On his lawn a flock of 12 of these birds was reported by Connie Johnson on May 5, 1988. These birds are more often in trees than on the ground.

Great-tailed Grackle: One was reported seen in Bishop in mid May by James Wilson. Ornithologists are watching the movements of this bird as it is progressively moving far north from the Salton Sea area of California.

****
* *
* Census counts of Western Yellow Pine *
* (Pinus ponderosa) given in Waucoba *
* News, Spring, 1988, were made by Der- *
* ham Giuliani, Big Pine, CA. *
* *
****

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00
Membership in the Bishop Museum & Historical Society.

VOLUME XII
AUTUMN 1988
4 Issues Per Year

This index covers five years (four issues per year from 1982 to 1987). The following abbreviations have been used: Roman numerals for volume number, w for Winter, sp for Spring, s for summer, a for autume. SUPPL refers to the supplements for Volumes I through III.

Artemisia
- History of VII,w,1983

Birds
- Bunting, Lark VI,w,1982
- Crane, Lesser Sandhill VI,w,1982
- Goose, White fronted VI,s,1982
- Grackle, Boattailed VI,s,1982
- Grosbeak, Rose-breasted VI,s,1982
- Hummingbird VI,sp,1982
- Juneo, Oregon IX,w,1985
- Kite, White-Tailed IX,w,1985
- Osprey IX,w,1985
- Oven Bird VI,w,1982
- Pelican, White X,s,1986
- Pigeon, Bandtailed VI,s,1982
- Solitare, Townsend VI,w,1982
- Towhee, Abert's VI,w,1982; X,sp,1986
- Towhee, Brown VI,sp,1982
- Tanager, Scarlet VI,w,1982
- Vulture, Turkey VI,sp,1982
- Warbler, Palm VI,s,1982
- Warbler, Parula VI,s,1982
- Waxwing, Bohemian VI,s,1982
- Whimbrel X,sp,1986
- Census
  - 1982 VII,sp,1983
  - Owens Valley VIII,w,1984
  - 1984 IX,w,1985
- Of Lone Pine VI,w,sp,1982
- Of Big Pine VIII,sp,1984
- Of Deep Springs VI,w,1982

Butterflies
- in California VI,w,1982
- in Migration VII,sp,s,1983
- Monarch VII,sp,w,1983;VIII,w,1984; IX,sp,a,w,1985.
- Painted Lady VII,sp,1983; VIII,w,1984; X,sp,1986

Chipmunks
- Litters VIII,w,1984
- Panamint VIII,w,1984; X,sp,1986

Coleoptera
- Pleocoma VI,sp,1982
- Rain Beetle VI,sp,1982

Contributor
- Anderson,G VII,s,1983
- Chandler, Wayne VI,w,1982
- Emlen,John VI,w,1982
- Foster, S&M X,s,1986

Contributors cont.
- Gaines, David VI,s,1982
- Gann, Earl VI,s,1982
- Giuliani, D VI-X, 1982-1986
- Gray, Peggy X,s,1986
- Heindel, T&J VII,s,1983
- Henry, Mary Ann VI,sp,1982; VIII,w,1984
- Howell, JT VI,s,1982; VII,a,1983
- Johnson,Conrad VI,w,1982
- Kuhr,Ron VI,s,1982
- Mawby, D VI,s,w,1982
- Mawby, J VI,w,1982
- McAdo, P VII,s,1983
- Pollorino, E VI,w,1982
- Prather, M VII,sp,1983; IX,s,1985
- Strickland, R VII,s,1983
- Sugden, Eran VI,sp,1982
- Wilson, James VI,s,1982
- Yoder, Vince VI,sp,w,1982

Deep Springs
- Birds of VI,w,1982

Environment
- Rivendell, Butte Co. VII,w,1983
- 11th Commandment VI,w,1982

Eureka Valley
- Photo X,sp,1986
- Fog X,w,1986
- Playa Life IX,w,1985
- Weather IX,w,1985

Ferguson, C.W.
- Memorial X,s,1982

Fossils
- Campito Formation, Waucoban Section IX,sp,1985
- Identification of IX,sp,1985
- Lower Cambrian IX,sp,1985
- Plant - Algae IX,s,1985
- Unique in White-Inyo Mts IX,sp,1985

Grasses
- Sierran VI,w,1982

Henry, Mary Ann
- Flowering season-unusual VIII,w,1984
- Leafy prickly poppy VI,sp,1982
- Penstemon floridus VII,a,1983

Howell, J.T.
- Supplements listed VI,w,1982
- tribute to VIII,a,1984

Insects
Checker spot butterfly VIII,sp,1984
Dune Weevil VIII,sp,1984
Monarch - see Butterflies
Moth, grant noctuid X,s,1986
Painted Lady - see Butterflies
Pleocoma, female VI,sp,1982
Tent Caterpillar VIII,s,sp,1984;IX,a,w,1985

Lorenz, Pare
poem, River VI,a,1982

Mammals
Kit Fox VII,a,1983
Panamint Chipmunk VIII,w,1984;X,sp,1986
Pine Squirrel VI,s,1982
Marmots VI,s,1982; VII,a,1983
Food for nonraptor birds IX,s,1985

Photo
Clouds VII,1983
cirrus X,sp,1986
cumulus VIII,w,1984
Ice VIII,s,1984
Eureka Valley X,w,1986
Snow line on Sierra VII,s,1983

Pinus balfouriana
Foxtail VII,sp,1983

Pinus monophyla
Seed set X,sp,1986

Pinus ponderosa
Census - Big Pine Creek X,w,1986

Plants
Agremone corymbosa VI,sp,1982
Bear Poppy IX,s,1985
Chia VI,s,1982
Digger Pines IX,a,1985
Dudleya calcicola, VIII,w,1984
Junipers Vii,sp,a,1983
Lianathus - Purity
Evening Snow VII,s,1983
Loco, Scarlet VII,sp,1983
Mortonia VI,s,1982
Penstemon, late blooming VII,a,1983
Phacelia, Charlotte's VIII,w,sp,s,1984
Pine
Foxtail VII,sp,1983
Pinyon X,sp,1986
Ponderosa,X,w,1986
Pinus ponderosa X,w,1986
in Big Pine Canyon X,w,1986
California Native Plant Society VI,sp,1982
Natives for gardens VII,s,1983
Perennials in bloom X,sp,1986
Pinyon-Juniper Woodlands IX,a,1985
in Short Canyon VIII,s,1984
Wildflower display VII,s,1983

Quotation
Faraday X,w,1986
11th Commandment VI,w,1982

Relict
population X,w,1986

Reptiles
Rattlesnake X,sp,1986
Skunk in White Mts VI,s,1982
Sidewinder X,sp,1986

Research Group
Mono Basin VI,sp,1982

Research Investigators
Bauman, R, BYU, Provo X,sp,1986
Shields, O, Mariposa X,sp,1986
Weaver, Bill, UCLA X,sp,1986

Research
Ongoing IX,w,1985; X,sp,1986
White Mt. Station IX,w,1985

Salamander
in Sierra IX,a,1985

Societies
Audubon VI,sp,1982
California Native Plant VI,sp,1982

Supplements
List of VI,w,1982

River
poem VI,a,1982; VII,w,1983

Squirrel Family
Golden Mantle X,sp,1986
Marmots VII,a,1983
Panamint Chipmunk VIII,w,1984
Pine squirrel VI,s,1982
White Tailed Antelope squirrel
VIII,sp,1984

Weather
effects of VIII,sp,1984
seasonal VII,sp,1983

WAUCOBA NEWS

WAUCOBA: A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME XIII
Winter 1989
4 Issues Per Year

Photo: 4 July 1976 Taken by the late David Gaines

California Gull Rookery
Negit Island
Mono Lake, California

This issue of Waucoba News is dedicated
To
The Memory of David Gaines

who in his short lifetime had founded the Mono Lake Committee and directed the attention and actions of environmentalists to the problems of the water of Mono Lake and its tributaries.

A Mt. Beaver

Aplodontia rufa californica

A Mt. Beaver was found dead in late Spring, 1988 along Coyote Creek near where this creek joins Bishop Creek in Inyo County. This specimen was taken to the Bishop office of California Department of Fish and Game for identification. Although the Mt. Beaver is a well-known resident of the Pacific Northwest, this subspecies seems at the time of this writing to be a rare resident of the eastern side of the Sierra. It has been reported previously from near Mono Lake and from Mammoth Creek.

This animal is strickly nocturnal in its habits. It lives along streamsides and in wet meadows where there are seeps, often with water running into its burrow entrance. It is sufficiently rare to be under consideration for the Endangered Species listing. This mammal is judged to be the most primitive of the living rodents and is not closely related to the Beaver (Castor). Its body size is about that of a Cottontail Rabbit, has dense brown gray fur, a very short tail, and small ears. It is a vegetation feeder.

-- Enid A. Larson

Chipmunks

January 23, 1989 - Repeated weekly checkings along the White Mt. - Westgard roads in December and January have yielded no sightings of either the Panamint or Sagebrush chipmunks. The last sightings of these were in early November, 1988. The live trapping program of Dr. M. Morrison, U.C. Berkeley near the Pinyon Picnic area also has yielded no chipmunks this winter. This is the second consecutive year that chipmunks have vanished in early November.

Squirrels

The Golden Mantled ground squirrel vanished in September, presumably into dens below ground.

Weather

January 1-22, 1989, has been dry. December 23, 1988 - A storm put 15-18 inches of snow on the floor of Owens Valley. Moisture content measured approximately 1 inch in 9.2 inches of freshly fallen snow.

Audubon Christmas Bird Counts

Bishop - not taken due to snow storm on December 23rd.
Lone Pine - 57 species
Death Valley - 37 species
Ridgecrest - 85 species, 7059 total
Lee Vining - 64 species, 5687 total

Large Satyr Butterfly

A unique population of this large Satyr Butterfly (Cercyonis pegala) lives near Mono Lake in a highly restricted meadow habitat. It represents the southern most population of this butterfly on the eastern side of the Sierra. Another population of this butterfly, now extinct, once lived at Owens Lake.

--John Emmel, Hemet California

Monarch Butterfly

Monarch's are being tagged with identifying numbers here in California in order to trace their migration routes and to locate their over wintering sites. Sightings of tagged individuals can be reported to Walter H. Sakai: Life Sciences Department, Santa Monica College, 1900 Pico Blvd., Santa Monica, CA 90405.

A tagged monarch in Santa Barbara was recovered 5 months later in Southeastern Arizona. This butterfly had travelled a straight line distance of 660 miles from its coastal wintering colony (reported in DANAUS, #2 Newsletter, 1988).

On November 22-23, 1988, D. Giuliani reported the number of monarchs from the Saline Valley:

Willow Creek - 25
McElvoy Canyon - 25
Hunter Canyon - 130

Giuliani also saw a **Great Purple Hairstreak** in Southwest Saline Valley, a butterfly usually associated with Mistletoe in the Coast Ranges. This may be the northern most record in the desert for this species.

****

Due to illness, the following four numbers of Waucoba News were NOT issued:

X a, 1986
XI sp, a, 1987
XII w, 1988

****

WAUCOBA NEWS

WAUCOBA: A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME XIII
SUMMER 1989
4 Issues Per Year

ANTELOPE

by

Eric Stone

THE PRONGHORN ANTELOPE
(Antilocapra americana)

A Western plains animal that ranges from southern Canada (Saskatchewan) into Northern Mexico. Their running gait is smooth and level with hardly any rise in the air at each bound. It is an exhilarating experience to see a band of these animals running. They have been clocked (car speedometer) running in excess of 40 miles per hour for long distances.

Terry Russi, BLM biologist in the Bishop office furnished the following information: Since 1981 in an effort to reestablish this animal in Mono County 117 animals have been released in two areas in southeast Mono County. At the present time 78 animals of all ages are known to be alive. Some have migrated from the released areas to as far north as Coleville or as far as 30 miles east of Tonopah, Nevada. Five individuals spent the winter in Hamil Valley. On April 20, 1989 Connie Johnson reported seeing a male in a field along Stewart Lane south of Big Pine. As many as 9 individuals have been sighted in Fish Lake Valley.

Apparently it is the young males that are the wanderers. Presumably the lone individual seen near Big Pine and one seen near Fish Slough, north of Bishop, returned to the band in Hamil Valley. The animals that were transplanted are feeding on shrubs: Bitterbrush, Sagebrush and Shadscale primarily. In the breeding season they use forbs.

Those animals that were present in Mono Co. in the 1800's were eliminated by overhunting, hence this program by BLM to reintroduce the species. These attempts are fraught with difficulty. It will take many years, perhaps 100, to reestablish a population that will successfully breed and increase its numbers to become self-maintaining.

TREES

ASPEN (Populus tremulioder). Vince Yoder, Bristlecone Pine Chapter of Calif. Native Plant Society, was under the impression that there were no Aspen on the eastern side of the Sierra south of Lone Pine Creek. However he located a small group of these trees on Lubkin Creek south of Lone Pine at 6500 ft. D. Giuliani in his survey of canyons on the eastern slope of the Sierra this spring reported a group of Aspen on Tinemaha Creek south of Big Pine at an elevation of 6500 ft.

INCENSE CEDAR. A small group of these trees were reported by D. Giuliani growing on Summit Creek south of Olancha. Ron Henry, Ridgecrest, said there is a sizeable group of Incense Cedar growing just over the ridge from Summit Creek on the western slope of the Sierra in Tulare Co. This is probably the first record for Incense Cedar in Inyo Co. and may represent a relict population.

YELLOW PINE. A small group of Yellow pine at 6700 ft. ± is growing on Goodale Creek. There is great variation in the cone scale arrangement which may indicate hybridization between Jeffrey and Ponderosa.
D. Giuliani counted 109 trees in this small group. They ranged in height from 6" to 80 ft.

WILDFLOWERS

This year at Sheep Mt. in the White Mt. range north of Schulman Grove wildflowers were abundant.

MAMMALS

Populations of various kinds of small rodents are at low ebb. Dr. Morrison (U.C. Berkeley) who is conducting a line-trapping program in the White Mts. below the pinyon picnic area has entrapped for this season only 1 adult Sagebrush chipmunk and 0 Panamint chipmunks, 0 young Golden mantled squirrels. The population of Pinyon Mouse is slowly increasing at this time, he reported.
On our census survey on July 3, 1989 D. Giuliani and I counted the following numbers of the squirrel family between 6000 - 9500 ft. elevation:

3 Panamint chipmunks, 3 Golden mantled squirrels and 3 Sagebrush chipmunks.
Two of the Panamint chipmunks behaved as young-of-this seasons and were probably litter mates. These are the only probable young-of-this season seen so far this year.

MOUNTAIN BEAVER (Aplodontia rufa). Ginny and Ward Smith report having seen at least 2 individuals active in daytime near Mammoth. These are unusual sightings as this mammal is most often active at night.

BUTTERFLIES

An APACHE FRITILLARY was collected by D. Giuliani, a first record for the White Mts. It will be placed with Dr. J. Emmel, Hemet, CA. Springtime butterflies were extremely scarce this year (1989).

BIRDS

Denise Racine, Dept. Fish and Game, reported from a survey at Deep Springs Lake of seeing 10 SNOWY PLOVERS (Charadrias nivosus) but no nests on the alkali flat. HORNED LARK were also seen there.

WHITE PELICANS. A flock of more than 200 were sighted flying northward over Big Pine on April 10, 1989. A report from Pyramid Lake, Nevada gives the following nesting information for this bird.

1986 produced 10,000 young
1987 produced 6,000 young
1988 produced 35 young

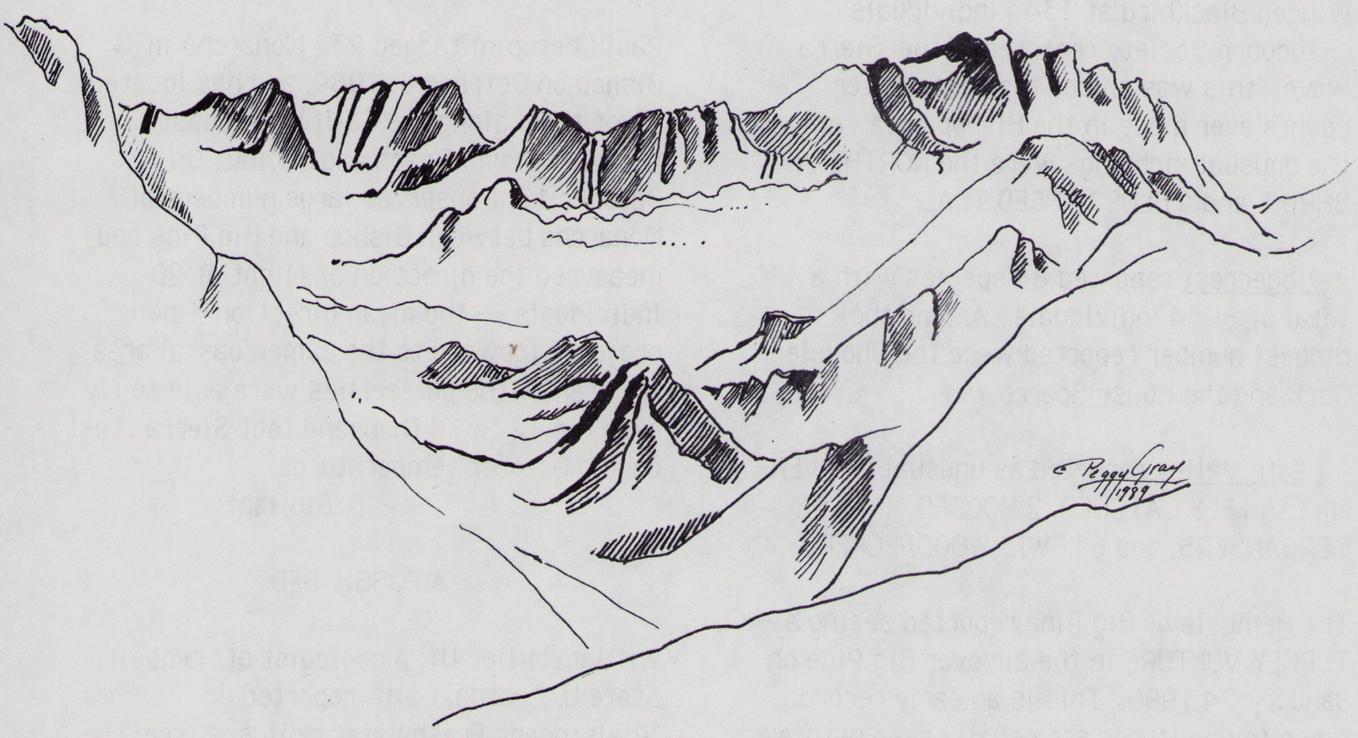
These counts were made at Anaho Island.

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME XIV
WINTER 1990
4 Issues Per Year



IN MEMORY OF
SMOKE BLANCHARD

ONE OF THE MOUNTAIN MEN OF THE EASTERN SIERRA
AUTHOR OF WALKING IN THE WORLD

Sketch contributed by the
local artist Peggy Gray

NOTICE: With this issue WAUCOBA NEWS has adjusted its dating to the calendar year. Spring and Autumn of 1989, Volume 13 have been omitted to accomplish this adjustment. This issue of Winter 1990 begins Volume 14.

****

WEATHER 1989-1990

This has been the 4th consecutive dry year for Owens Valley. Snow pack on the eastern Sierra is below normal and the valley floor is in drought.

BIRDS
(from the Christmas counts)

Bishop reported 73 species with a total of 3533 individuals. The highest number for any species seen at Bishop was the Red-winged Blackbird at 1344 individuals.

Audubon Society reported in the 'Sierra Wave' "this was one of the best winter counts ever made in the Bishop area. Among the unusual sightings were the NORTHERN SHRIKE and a BLUE WINGED TEAL.

Ridgecrest reported 84 species with a total of 8964 individuals. Among the highest number reported were the Shoveler Duck and the House Sparrow.

Death Valley reported as unusual one VERMILLIAN FLY CATCHER, 2 HOODED MERGANSERS, and 6 LEWIS WOODPECKERS.

The Heindels of Big Pine reported seeing a TURKEY VULTURE in the air over Big Pine on January 24 1990. This is an early record since few vultures are usually seen before March 10.

CHIPMUNKS

Neither of the 2 species of chipmunks in the Pinyon-Juniper Woodlands of the White Mountains has been seen since the 21st of November, 1989. Presumably they are in hibernation. Their absence this winter was unexpected and makes the 3rd consecutive year that they have vanished in November.

-- Enid A. Larson

SUGGESTED READING

RAVENS IN WINTER: A Zoological Detective Story, B. Heinrich, Summit Books, 1989. Cost: $19.95.

MONARCH BUTTERFLIES

D. Giuliani reported the following from his observations in Saline Valley on November 24, 1989:

Willow Creek = 55
Mc Elvoy Canyon = 50
Hunter Canyon = 915
TOTAL = 1020

This is the largest number in 14 years of counts. Over 600 Monarchs were in 8 clusters on a single tamarisk tree at the Hunter Canyon site.

Paul Cherubini tagged 232 Monarchs in Bishop on October 8, 1989, and has located 11 of them along the California coast between Pismo Beach and Malibu. On October 12, I observed large numbers of Monarchs between Bishop and Big Pine and measured the direction of flight of 20 individuals -- the mean direction-line projects forward to the same coastal area. Apparently the butterflies were able to fly over the 12 to 14 thousand foot Sierra crest during October temperatures.

-- D. Giuliani

A FOSSIL BED

William Miller III, a geologist of Humbolt State U. Arcada, Calif. reported on "Pleistocene Freshwater Mollusks from the Owens Lake Playa." This assemblage of fossils includes a variety of snail shells and one species of bivalve clam. Altogether these fossils indicate that Owens was a fully developed pluvial lake in the late Pleistocene. The fossils have been placed in the Invertebrate Paleontological Collection, Academy of Natural Sciences, Philadelphia. Miller's study was reported in Vol. 22, No. 2, Tulane Studies in Geology and Paleontology, Sept. 20, 1989, Tulane Univ. of Louisiana.

CORRECTION

WAUCOBA NEWS apologizes to Mrs. Ginny Smith for misquoting her reported observation of the Mt. Beaver. She said "it was two Mt. Beaver I saw at Mammoth. Both individuals were active at night." THANKS

WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum & Historical Society, Bishop, CA 93514
Founded and Edited by Enid A. Larson, Box 265, Big Pine, CA 93513
Subscription: Four 9" long stamped, self-addressed envelopes or a $7.00 Membership in the Bishop Museum & Historical Society.

VOLUME XIV
AUTUMN 1990
4 Issues Per Year

IN HONOR OF
ANNETTA CARTER
"BOTANIST"
UNIVERSITY OF CALIFORNIA
BERKELEY

BEYOND THE ELFIN FOREST OF GOBENADORA (LARREA TRIDENTATA) IN BAJA CALIFORNIA

GEOGRAPHIC DISTRIBUTION

The geographical range of this shrub is quite extraordinary. It extends into South America and is a member of the Peruvian and Argentinean deserts. When I flew to La Paz, Baja California, to meet my botanizing friend, A. Carter (U.C. Berkeley), little did I expect to be camped out on a mesa in a pigmy forest of Larrea, but such was to be.

Larrea is the dominant shrub that forms pigmy forests in the deserts of southeastern California. It has outreaches as far north as Deep Springs Valley; and one shrub grows in isolation about 5 miles north of Big Pine along the old county road in Owens Valley. Where it grows in pure stands, its fragrance is unmistakable and unforgettable. Creosote Bush is unusual in that it forms living rings by cloning. These rings arise from one individual plant, and are now known to be almost 12,000 years old.

Travelers to Death Valley from either east or west may enter and then cross the Eureka Valley which is extremely arid, seldom with standing water in its playa. Yet, the Eureka Valley has a pigmy forest of Larrea in pure stand extending for approximately 60 miles in a north-south direction. Often on the ground around the bases of these shrubs are cuttings of its stems. Evidence points to the Black-tailed Jack Rabbit as the "pruner." Apparently the hares in this arid land procure their moisture from the cut ends of these stems.

A JOURNEY INTO THE HINTER LAND OF BAJA CALIFORNIA

Seventy-five miles north of La Paz on our way to Soledad, we turned off onto an unpaved road where the creeping cactus was struggling to maintain itself against man's encroachments. We hoped to journey into the back country and find our way to Cerro Mechudo, a peak in the Sierra Gigantia. This road was rough and our travel was slow. The sun set and darkness overtook us, so we camped on a flat mesa too late to see our surroundings. I was awakened only once, by a car's headlights nearby, but the car drove on. The velvet blackness of the sky against which the stars and Milky Way moved in all their grandeur were above us.

At dawn, after a quick breakfast, we were on our way eastward once more. What a surprise it had been to awaken that morning to the fragrance of Larrea! "Gobenadora", said my friend who spoke Spanish like a native. On and on we rode through this elfin forest that was a duplicate of the Mojave Desert far, far to the north.

We came to an outlying ranch. Chickens, turkeys, and a pig were in the yard as the womenfolk lined up at the gate to greet us. One woman with great sparkle in her eyes was especially eager to talk with us. She spoke of her longings, as my friend and she conversed in Spanish. The Mexican women's eyes shone as they expressed admiration for us, two women alone, journeying so far into the hinterland of their country. Unbelievable! How she would have loved to explore as we were doing.

On we went. Soon we came upon a road repair crew, five men, each with shovel or rake. They would be paid for their labor with sacks of dry beans. They were eager to know where we were going and the reason for our driving this road into the backcountry of Baja California where few strangers ever are to be seen. On our return these same men were still at work. One man asked in Spanish "and how has the journey gone for you?"

As we approached Solidad we left the mesa and dropped into an arroyo with its walls a mosaic of colors; green, red and gray strata predominated. The road ended at the settlement where a government school was established. Children were boarders here and were away from their homes for months at a time. They were required to attend school from first through sixth grades.

Under a broad "remada" we sat in the cool shade while my friend made arrangements for a guide and saddle stock to take us into the land of Cerro Mechudo. Soon we met with Alvarezo do la Cruz, and he directed us to his rancho 8 miles away in the Arroyo del Coyote. He would meet us there and serve as our guide. There were birds (a sapsucker) working in the orange orchard which "Cruz" said were "Los Carpenteros de la Naranjos."

We left Solidad and the VW Van traveled those 8 miles over very rough terrain without incident. The "Cruz" house, built by weaving split wood of the "Palo de Arco", was located on the Mesa above the channel of the creek. The water source was from a spring at the junction of a geological unconformity in the strata along the canyon wall. All of the water used for domestic purposes was carried in buckets to the house by the girls of this family. A small garden plot was fenced and watered entirely by buckets of water hand-carried. Marigolds were in bloom there and I marveled at the persistence of this family to maintain beauty at the cost of hand-hauled water up the steep trail from that spring.

Cruz had the animals ready early the next morning. We were soon in the saddles with pack animals carrying our food, water and sleeping bags. We rode steadily up the water-washed canyon's stream bed, over and around boulders, stopping only for lunch. Cruz had promised me that I would sleep under an Oak tree that night, but we were stopped by a trail blockage before we reached the oak. While we cooked supper over our little campfire, Cruz went ahead and brought back to me branches of oak, Quercus oblingifolia said my botanist friend, A. Carter.

The next morning we walked up to the head of this arroyo and looked down a steep dropoff to the Gulf. Immediately the air was blackened by great numbers of cliff swallows calling loudly and swirling near us. Surely their numbers were in the many thousands!

Here we were at the base of Cerro Mechudo which A. Carter hoped to ascent. But "no" said Cruz. "The year was too dry" and none of the plants would be in bloom. So she did not reach her goal. Here I collected a specimen of Dudleya for Dr. Reid Moran at the San Diego Museum.

On the way down the arroyo one of the horses kicked "Cruz's" 13 year-old son, and my horse squeezed through a so narrow passage between two huge boulders that my foot in the stirrup was laid backward and I suffered much pain. At camp that night my foot was soaked in hot water and the boy's arm was treated with cold creek water to try to take down the swelling that had resulted from the kick of the horse.

These were our only mishaps. A few years later A. Carter and Reid Moran, botanists, made another trip into this arroyo, again to try to climb Cerro Mechudo. "This time," said Carter, "por la favor de Dios I shall reach its summit." But a few miles out from the rancho in Arroyo del Coyote, Carter's horse fell and she sustained a broken arm. So ended that trip. "Obviously," said Reid Moran, "you do not have the favor of the Gods."

On our way back down the Arroyo del Coyote, Cruz decided to take us out of the canyon and into the next one to the north. In that canyon the Palo de Arco trees were in bloom, great yellow tubular flowers. A swarm of more hummingbirds than I could count were visiting these flowers. These were the Costa hummingbirds. They showed no antagonism one to the other as do the Allen hummers. On this return journey we passed by two ranches where the inhabitants waved in friendly fashion to us.

That evening Cruz invited us to come up to his house and he and two of his sons would sing for us. They belonged to a musical group that sang often at Loreto and La Paz. We sat around a campfire as they sang softly. The fire was built in a large enamel kettle so that the children would not step on hot coals nor contact burning embers.

At 9 pm we bade this gracious family good night and went to our sleeping bags. After 5 days in the saddle we were glad to be at rest. The next morning we bade them "adios" and were on our way out of the Arroyo del Coyote to return to a paved road that would lead us to Loreto and a view of Cerro Mechudo in the Sierra Gigantia range, which had proven impossible for us to climb on this trip.

By Enid A. Larson

****

NOTE: For the file record, your editor has been ill so that only two issues of XIV have been issued in 1990.

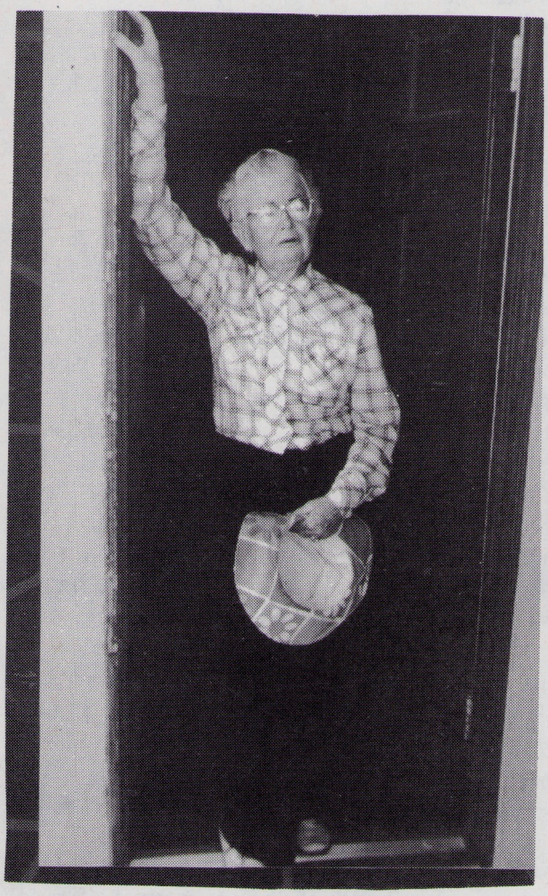
WAUCOBA NEWS

WAUCOBA: **A Paiute word for "pine tree" — also highest peak in Inyo Mountains, 11,127 feet.**

Sponsored by the Bishop Museum and Historical Society, Bishop, CA **VOLUME XV**
FOUNDED AND EDITED BY ENID A. LARSON, BIG PINE, CA **SUMMER 1991**
EDITOR SPECIAL MEMORIAL ISSUE: STEVEN FOSTER

IN MEMORY OF ENID A. LARSON: TEACHER, BIOLOGIST, FRIEND

AUGUST 2, 1905 -- APRIL 6, 1991



Enid Larson, Summer, 1971. Photo: Galen Rowell

"Early April, 1983. Birch Mountain, from my window on Flower Alley."

"There will never be another Renaissance woman of the environment like Enid Larson. She could speak with the kind of eloquence that Rachel Carson put on paper and fight for preservation with the same uncompromising energy and spirit as that other well-known Sierran, David Brower. But beyond all of this work in her later years, she was a consummate teacher. Twenty years ago when I was invited to lecture for one of the first and most innovative college outdoor education programs at Idaho State University, I was not really surprised to learn that the Director was an old student of hers. He saw the need to add active outdoor experience to the normal college curriculum of passive knowledge ingestion. Perhaps Enid's highest calling was this: her ability to infuse all she knew with an energy and spirit nearly equal to her own." (Galen Rowell, photo-journalist)

"She was a unique combination of hot passion and calm decency. No wonder we all loved and respected her." (Claire and Howard Cramer, friends)

"Enid was loved, admired and respected. We enjoyed her despite her peculiarities. She was never pretentious, totally involved in what she believed. As a stewardess of the beautiful world we have all inherited, she ranks among the greatest -- in the same league with John Muir and others." (Donna S. Strong, cousin)

"So many lives have been impoverished by the death of the special, unrepeatable, fragile, sparkling, ruby emerald jewel rainbow splendor person that was Enid. I will forever miss in my life her way of seeing life as real -- joy as something to spread, the earth as a trust to fiercely protect, and all its living things as precious. Truly the world has lost a relentless lover and care giver." (Nellie Ryder, friend)

"She believed working in the field was the only way to gain true biological knowledge, and that study should be done without disrupting animals' lives or damaging their habitat. Always she was motivated by a personal love and respect for the subject material." (Derham Giuliani, field biologist and friend)

"I first met Enid Larson as a sophomore at Carmel High School. The impressions were immediate and would last a lifetime. In the first five minutes of class she threw down the challenge with her opening remark: "The responsibility of learning rests with you. I can only show you the way." (Jerry Stufloten, teacher)

Among such clouds
Somewhere, sometime --
In solitude and hope
I shall answer to a call of life's changing patterns.

-- Enid Larson

"'Wouldn't Enid have loved this!' we exclaim whenever we read a newspaper editorial or column about world peace or ecology or the current political situation -- ideas that echo Enid's lifelong sentiments. And, we think of her when we see a particularly striking cloud formation or majestic mountains or a sweeping vista of beauty.

Enid was a remarkable person and as you can imagine had a very strong influence on our lives. She kept in close touch and gave her opinions freely. And, if it weren't for Enid we would know very little about our family genealogy. She really delved into our family's roots and then was very generous in sharing that information. Because of Enid, our family, though scattered in many directions, is much closer in our love and appreciation of one another."

Pain was an unwelcome constant companion during the past several years of her life but Enid would say, 'But let's not talk about it,' and then proceed with her current projects. The WAUCOBA NEWS was a vital part of her life and through it she and many others could share their abiding love of the Owens Valley. Cheers, Enid! We love you." (Carol [and George] Kabat, niece)

"The Larson family had two reunions. The first one was in 1964. We met in Coleville, CA. The entire weekend was spent in comparing notes, dining, picnicking, meeting, and making field trips to nearby places. The family home and barn were still standing. Many pictures and mementos were gathered. A second reunion was held in 1976. This too was in Coleville. It was held to celebrate the raising of the flag her Grandfather Wood Larson, his son Victor H. Larson, and the Cole brothers had erected on Centennial Bluff near Coleville in 1876. Enid Larson and her brother were in charge of this celebration. Thirty-four descendants were able to attend. The younger members reenacted the ceremony by climbing the bluff, putting in another pole and raising a new flag. The flag still waves as of 1987. The house and barn have since burned. Neighbors said it could have lasted another 100 years. Enid was quite proud of the barn as her father had built it.

She traced the family to John Clay who came from Wales to Charles Clay, father of Henry Clay the statesman down to our Great Grandmother Ariminta Jane Clay. This was from the year 1585-1956. The present records are now twelve generations away. The records are quite extensive and with great detail. She must have done this when she attended school in North Carolina at Elon College." (Donna S. Strong, cousin)

"I met Enid in 1967 at Pleasant Hill High School. I was basically a new teacher with a few years of experience, trying to figure out how to survive and hopefully flourish in a profession that a school of education had left me ill-prepared. I happened to be assigned to the room next to Enid's. At first opportunity, I went over and introduced myself. Enid looked me over somewhat skeptically and said, 'So you're our new social studies teacher. Do me a favor and tell me what you think of this paper. She handed me a student written paper entitled, 'A Biological Rationale for the United Nations.' I read the paper at first opportunity and it still remains one of the best examples of student work with which I have had contact." (Neil Agron, teacher)

"My last visit with Enid was in the spring of 1989 when my family joined her for a ride and picnic to her beloved White Mountains. My fondest memory was watching my two daughters' totally fascinated expressions while Enid recounted chipmunk stories. She so involved them in descriptions of chipmunk's habits, habitat and the balances in nature that they became enthusiastic chipmunk census takers. And to this day my oldest daughter's favorite animal is a chipmunk." (Joan Cross, biologist)

"I met Enid in 1949 when I moved to Carmel with my family from Chicago, where I opened my office as a Psychiatrist (MD) having been very active in the mental health field and particularly in adolescent and young adult problems. Enid contacted me regarding help in the school where she taught. We met together with some other teachers who all felt overwhelmed with some problems they felt ill-equipped to cope with. In our discussion, a growing awareness indicated widespread conflict within the administration and faculty, as well as behavior and learning problems in the students and beyond in the community itself. I worked up a program of ongoing classes for school administrators, teachers, and social workers sponsored by UC Berkeley with credits. Starting with two courses, which were very well attended, demands came from a number of community colleges until I had 6 different courses in the Extension of UC Santa Cruz. Enid took a vital part in my work and made many fine contributions through her valuable observations regarding her students, ways of motivating them to get involved in the learning process. A deep friendship developed and continued to her death." (Friedy B. Heisler, M.D.)

"One fall day she told us that there were many important things that we should learn about plants. She held up a potato and asked, "Well, what do you want to know about this?" The class was silent. We realized we didn't know how to ask the question that would begin the study. So, after a long moment she took a scalpel and sliced open the potato. "The chemists tell us that iodine reacts with starch and turns it dark blue." She then demonstrated this by pouring iodine into a test tube of starch. The mixture turned dark blue, almost black. She then placed a few drops of iodine on the cut surface of the potato. It turned dark blue. "Well, now what question do you have?"

There were a few feeble attempts at a question. One student asked, "Why is there starch in the potato?" to which Enid replied, "Science cannot answer 'why' questions!" "Why not?" the student retorted. Miss Larson paused and looked over the class and quietly said, "Because a why question implies a personal motive. So, I guess we'll have to ask that question another way." "How does the starch get into the potato?" came the question from the back of the room. Larson beamed. "Now we can go to work." (Jerry Stufloten, teacher)

"I didn't know Enid very well yet in 1971 when she and Derham and I took a ride up into the White Mountains in my GMC 4-wheel drive truck. I knew she'd fought against off-road vehicles, against widening Highway 395 between June Lake and Mammoth, against widening Westgard Pass, but I seriously underestimated the degree of civil disobedience in her soul. We came up to a locked Forest Service gate. Just as I was thinking to myself whether I would have such an esteemed conservationist in the truck with me, Enid spoke up in that shrill voice that she knew was a caricature of herself: 'Young man, is this car as good as my Volvo?'

'I think so,' I answered.

'Then back up 40 feet and go to the right. That's how I always drive around this gate in my Volvo!' I bounced and chugged and barely made it in the 4-wheel drive. Enid laughed and cheered when we reached smooth ground on the other side of the gate. For her there was a difference between purposely driving a vehicle off the road and harming the land inconsiderately, and obeying what she considered to be the inequitable regulations of a federal bureaucracy where a road already existed that could give her access to a place she wanted to go." (Galen Rowell, photo-journalist)

"I remember Enid riding her horse bareback to the two room schoolhouse in Sunland." (Donna S. Strong, cousin)

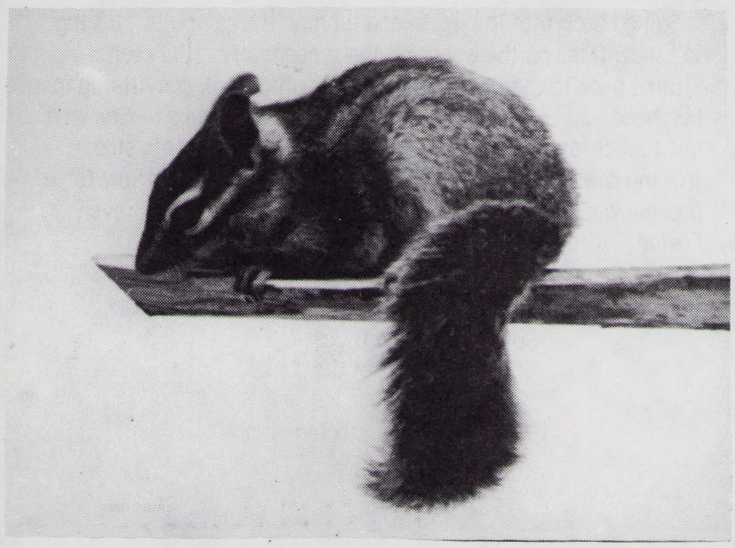
"The year began with no textbook. We were required to keep a notebook, a journal of our daily work. We had to examine the evidence for ourselves and use that information to defend our statements in class. She let us argue and debate with fellow students and she made certain that we did so with an atmosphere of mutual respect. She would remind us, "Science is an attitude, a way of thinking." (Jerry Stufloten, teacher)

"Biology was not an end, but a solid vehicle for her understanding the world, people, behavior. Her priorities were many: peace, children, the beloved Owens Valley, and biology.

I first met her at Pleasant Hill High School where as a biology teacher she was cutting new ground in the behavioral sciences with her work in the creative processes with 'B' level students -- her preference -- because she found them to be far more creative -- less constrictive -- than the high achieving ones. Her own publications were examples of her creative mind while not ignoring her scientific methodology in animal research.

Miss her? Yes, because our conversations have ended -- and, no -- she lives. (Dr. Harvey R. Wall, photographer)

"She didn't talk a lot about herself but was either full of reports about some exciting project just completed or plans for a new adventure. She visited here after her lone trek across the LoLo Trail and another time after being picked up for dead in Baja California where she was studying chipmunks." (Claire and Howard Cramer, friends)



E. merriami meridionalis (Merriam's Chipmunk). Male. Las Animas River, Baja California. This sub-species is isolated and the race is thought to represent a relict population. Photo: Enid Larson

"She felt that much of use to human society could be learned from the social behavior patterns of animals -- that problems such as stress and conflict could be eliminated from human culture by observing how that had been solved in animal societies." (Derham Giuliani, field biologist and friend)

"Enid and I became close friends, mainly because in the beginning she became my unofficial mentor. I took every opportunity to have her teach me everything she knew about the art of teaching. She taught me inductive and deductive questioning techniques, necessary if I was to 'not give students the answers,' a technique for which she was justly famous even then. She impressed upon me the need to teach students critical thinking skills, which is just now a 'buzz word' in educational circles. Our district social studies consultant was fond of saying that the best social studies teacher in the district was Enid Larson of the Biology Department at Pleasant Hill High." (Neil Agron, teacher)

"Out of many memorable teaching experiences with Enid, one comes to mind that emphasizes her teaching focus on the worth of the student. In the San Francisco area a Science Fair is held annually to select 1st, 2nd, and 3rd place winners of the student science projects submitted by the various schools. Enid was basically opposed to this competition idea because she believed that each and every student who did a project should be a winner for his/her efforts. To this end she was dedicated to initiating a Science Symposium in our school district. Participating students (some who had never done this before) would orally present their research findings to invited guest scientists. A question and answer session would follow which left the students feeling positive about their efforts and proud of themselves. All participants were winners as there was no competition. And this is what Enid believed should be. After the presentations there would be a dinner with the guest scientists and each of the students would receive a Science Symposium pin. Everyone equal -- no competition for awards." (Gene Goselin, science teacher)

"One incident that stands out is my memory of our involvement in the People's Park incident in the late 1960s. She was appalled at the way students were being treated by the university authorities and suggested that, since we were both Berkeley graduates, we had an obligation to support the students by marching in the protest parade. Accordingly, we did participate, with Enid holding a sign saying 'Class of '29.' It is still difficult to recollect that, as we marched, we were flanked by California Highway Patrolmen with shotguns and national guardsmen with a variety of automatic weapons. At that time, there were many empty lots in Berkeley due to the construction of BART. Students et al who came from out of town were camped in these lots. That evening Enid said she was curious and wanted to walk around the town to see what was going on. It was dark when we innocently strolled into one encampment. There was the heavy smell of marijuana in the air, young people stoned on LSD were dancing around open fires. In short, every mother's nightmare. Enid looked at me and said, 'Don't tell me there isn't a generation gap!'" (Neil Agron, teacher)

"Enid was a real activist. She always spoke of the BLM as the 'B L and M.' This expression *was* Enid. . . . She spurred me on and encouraged me in my environmental activism. . . . I miss knowing she is up in Big Pine keeping track of things." (Mary Ann Henry, botanist)

Photo: Enid Larson

I am the daughter of Earth and Water
and the nursling of the sky
I pass through the power of the ocean and shores
I change but I cannot die --

-- Shelley

"She was a dear, dear friend and an example for me of how to mix passion and science and emotion into efforts to preserve the Earth's last wild places. Her sense of outrage was so heartfelt and backed by truth combined with life experience that men twice her size in important positions shuddered to speak with her on issues where she had the truth and the long view of earth on her side." (Galen Rowell, photo-journalist)

"She and my father were great lovers of the California desert, and I am one of those very fortunate students who had the rare and wonderful experience of studying biology with her. She is with me daily in my classroom and constantly reminds me of the warm, caring respect she gave each of her students as she led us through the intricacies of 'the web of life' and permitted us to discover ourselves in the immensity of the universe. She inspires my own teaching, and all my students know her through my anecdotes about my studies with her. I must tell you that when I first began my studies in zoology at UC Davis I unwittingly stunned professors and TAs alike with my technique in preparing flawless slides, coverslip applied with forceps, and never an air bubble to obstruct the microscopic view. They wanted to know who'd taught me how to do that." (Kathleen Aldrich, teacher)

"She enjoyed books or discussions which explored new ideas with an open mind, was distressed when anyone was too fixed on a single interpretation or theory. She was guided by the principle: Do not believe. Look only at the evidence." (Derham Giuliani)

"Although she was one of the older members of our faculty, she was the first to dare to wear a pants suit to school." (Neil Agron)

Photo: Enid Larson

On clouds
I crossed the great sierran crest
And found myself in harmony
With the universe.

-- Larson

THE WAUCOBA NEWS will continue to be published as a quarterly by Enid's grand-nephew, Dr. Alan Kabat of the Smithsonian Institution, Washington D.C. Carla Scheidlinger, a naturalist and teacher from the Owens Valley, will assume the editorship. Address future queries to Carla Scheidlinger, Waucoba News, 393 Mt. Tom Road, Bishop, CA, 93514.

"A woman of remarkable fire, kindness, generosity, truth, and courage. Enid taught me what it means to be a true elder, linking her deep background of wisdom gained through full life experience with an ever-constant hunger for the new. I always felt completely seen and accepted, while deeply encouraged to stretch myself into the potential she knew we are all capable of. She taught me how a courageous woman fights, and then surrenders to, the challenge of a good death. I carry her in the night sky of me, and am inspired to carry on the fight of love." (Meredith Foster, wilderness guide and friend)

Written a few weeks before her death:

"Lost in Enid thoughts, I didn't notice that the moon has eluded the clutch of the dead locust tree. The night wears a silken pelage, like the grey in a black and white photograph. Enough of these shadows. No doubt a good deal of my gloom at the idea of her death has to do with anticipated pain over her loss. The living are the ones who grieve. I'm reminded of a small anecdote in Enid's chipmunk book: "A female died in convulsion in my hand. Cause of death -- two grains of 1080 poison oats (spread for ground squirrel control) were found in the stomach." Behind the simple objectivity of the words I sense a woman grieving. Even so I grieve for the woman who grew up in an age ignorant of the cause of osteoporosis until it was too late, an ignorance as poisonous as 1080. It worked slowly but surely on her wiry body until her bones couldn't carry her anymore.

So I go back into the house and turn on the computer, trying to concentrate on the words on the screen. My mind keeps sliding back to that image of the dying chipmunk convulsing in her hand. Someday soon it will be time for her to go. She will put that chipmunk in our hands. We'll linger on this side, looking down at that inert cocoon of broken bones and vow to become worthy of the spirit that once lived there." (Steven Foster, writer and friend)

Sunset over the Inyos
'. . . and after that the dark.'

-- Larson/Tennyson

Photo: Enid Larson

Waucoba News

Founded by Enid Larson Volume XV Winter 1991
Editor: Carla Scheidlinger 393 Mt. Tom Rd. Bishop CA 93514 (619) 873-8439

With this issue I begin my editorship of the **Waucoba News**. It was Enid Larson's wish that the **News** be continued, and I will make an effort to continue the publication in the spirit in which she founded it: "dedicated to reporting the natural history and research on the eastern slope of the Sierra". It is my intention to focus each issue on a particular region or a specific concern in our area, including as well a column on general observations on flora and fauna as they are seasonally available; and space for individuals seeking information on some particular topic. Anyone who wishes to submit information or requests are invited to do so, addressed to the editor.

This issue reports on the White Mountain Research Station Symposium IV on "The History of Water" held in Bishop September 19-22, 1991. These symposia are testimony to the fact that our region truly functions, in the words of Robert Curry, as "the University of the Eastern Sierra". This UC Santa Cruz professor pointed out that many local discoveries, especially in geology, have substantially contributed to the advancement of that entire discipline. A similar case could be made for other sciences. What follows are brief abstracts of several of the presentations made at the most recent symposium. A program with complete abstracts may be requested from the University of California, White Mountain Research Station, 6713 Geology Building, Los Angeles, CA 90024-1567 (213) 825-2093. Published proceedings of this symposium will be available in about a year; proceedings of the previous 3 symposia may be ordered from the same address.

Macmillen, Richard. Water economies of seed-eating mammals and birds.

The smallest mammals and birds are the most independent from drinking water, deriving water from their food or from the processes of metabolizing it. Black-throated and vesper sparrows are birds that are champions of water conservation.

Jellison, Robert. Ecosystem responses to changes in freshwater inflow to Mono Lake, CA.

For 6 years during the mid-1980's, the waters of Mono Lake failed to "turn over" or mix, due to the inability of fresh waters flowing into the lake to blend with the existing hypersaline lake waters produced by heavy diversions and droughts in the past. This stratification affected production of both algae and shrimp populations, since algal production drops off as salinity increases, and shrimp hatching is dependent on algal concentrations. Mixing resumed in 1988 as the surface fresh water evaporated and diversions were again implemented.

Rubega, Margaret. Prey density, feeding rate, and responses to changing water regime: phalaropes at Mono Lake.

Phaloropes on their way south rely on Mono Lake as a feeding stop providing them with brine shrimp and brine flies. Both food sources are affected by changes in lake salinity. Experiments demonstrate that when these foods are in low densities, brine flies are crucial to the birds' survival. They are not capable of surviving on brine shrimp alone.

Toft, Catherine. Development of late Holocene sand-dune ecosystems rimming Mono Lake.

Four general microhabitats were identified, defined by differences in soil type, depth, and alkalinity. Dune crests are dominated by greasewood, midslopes by rabbitbrush and horsethorn, flats by rabbitbrush, and hardpan flats by saltgrass. Greasewood actually brings groundwater to the surface by hydraulic lift, allowing other species to invade. Results of these studies will assist in dune restoration in the Owens Lake bed.

Bach, Andrew. Glacial avulsion as seen in Pleistocene moraine complexes of the east-central Sierra Nevada.

At least 10 glacial events occurred the eastern Sierra in the past 180,000 years. Moraine formation on Bishop and Big Pine Creeks show that the sizes of the glaciers decreased over time, and that glaciers sometimes broke out of previously established channels and created a type of alluvial fan. Such changes of course may have been princially caused by tectonic activity. Analysis of moraines of different ages and positions may be valuable indicators of climatic change within glacial periods.

Kattelmann, Richard. Historic floods in the easter Sierra Nevada.

Factors inducing flood events in this region include runoff from heavy snows, especially those late

in the season (1969); winter rains ooccurring on top of snowpack (1861 and 1991); intense summer rains (1945 and 1989); and outburst floods caused by failure of a lake impoundment of landslide dam (1982 in Virginia Creek). There do not appear to be any trends in the 60-90 year period of record in the peak-flow of local streams.

Pister, Phil. Ethics of eastern Sierra water development.

This discussion pointed out that the development of values depends upon the depth of time involved in realizing those values. Currently, environmental concern must focus on the needs of the future as well as those of the present. Resource managers should refer to Aldo Leopold's concept of ethics, and recognize that a strong political will is necessary to accomplish meaningful conservation goals. Conservation ethics are rooted in the certainly that we are all ultimately dependent upon natural processes.

NOTES AND OBSERVATIONS

The Painted Lady butterfly (Vanessa cardui) underwent a massive northward migration from Mexico in 1991, with reports from throughout western US. The last large migration occurred in 1973.

Numbers passing through Inyo County, from the lowest to the highest elevations, reached a peak in early May when up to 90/minute could be counted over a 100' line.

Though their egglaying utilized many host plants here, it was fiddleneck (Amsinckia vernicosa) which provided most of the food for the caterpillars. The March rains caused this annual to become the dominant plant throughout the valley enabling millions of V. cardui larvae to complete their metamorphosis and continue the migration. These caterpillars, along with the larger green hornworms of the Lined Sphinx Moth, were a common sight on the streets and highways.

Sometime within the short interval of July 1 to July 9, this primarily NNW migration changed abruptly to a southward flight. Involving much smaller numbers (I saw a maximum of 4/minute over a 100' line in August), the fall southward migration is rarely seen.

- Derham Guiliani

Doris Fredendall of Big Pine reports that the abundance of the noxious weed Ambrosia acanthocaropa, the sandbur, is increasing along the roadsides of Inyo County, especially along the west-facing stretch of the Westgaard Pass road, and on the road to the Oak Creek fish hatchery, where it exceeds even populations of Russian thistle (Salsola sp.) Doris has been removing both weeds from a 8-mile stretch of the Westgaard Road for several years; now; her efforts are appreciated.

- Carla Scheidlinger

Inyo County was host to a number of rare birds this fall. A family of 5 Bewick's swans, a Siberian species and the first ever for Inyo, was seen often in November between Independence and Klondike Lake. An oldsquaw (3rd record) was at Tinnemaha in November joined by a white-winger scoter (7th record) and 2 bald eagles. Three sandhill cranes (7th and 8th record) were seen in Lone Pine and near Independence. A Heerman's gull at Tinnemaha in October was the 1st record for Inyo. Furnace Creek in Death Valley hosted several red-throated pipits (3rd record), 2 LeConte's sparrows (6th record), and a common grackle in October and November.

- Tom and Jo Heindel

Last week I was visited by Dr. Ellis Yochelson, retired paleontologist from the US National Museum, Washington, D.C. who is completing a biography of Charles D. Wolcott. Wolcott was the 2nd director of the USGS, and had spent 3 summers in the White-Inyos in the 1890's. Dr. Yochelson and I used Wolcott's diaries to trace his travels during those summers. Among Wolcott's contributions to geology were a paper on the recent uplift of the Inyo Range, including the deposits of Waucobi Lake; and a paper on the stratigraphic section of the Waucoba Springs that includes early Cambrian fossils. This section is designated the "type section" of the lower Cambrian strata for North America.

- Clem Nelson

SPRING 1992 ISSUE

The coming issue of the **Waucoba News** will highlight the natural history of Deep Springs Valley. Contributions to this issue should be addressed to the editor.

REQUESTS FOR INFORMATION

Dr. Joe Szewczak is conducting a study of bat hibernation sites in the White-Inyo Mountains. If you know of any mines or caves in the region that might harbor bats, contact Joe at Deep Springs College, via Dyer, NV 89010 or (619) 872-2000.

SUBSCRIPTION INFORMATION

If you are not receiving this issue of the **Waucoba News** with your membership in the Bishop Historical Society, this may be the last issue you will receive unless you enter a subscription. Send $5.00 payable to Carla Scheidlinger to the address above to receive 4 issues/year.

Waucoba News

Founded by Enid Larson Volume XVI April 1992
Editor: Carla Scheidlinger 393 Mt. Tom Rd. Bishop, CA 93514
Subscriptions: Membership in Bishop Historical Society ***OR*** $5.00 per year, payable to the editor

This issue of the *Waucoba News* features Deep Springs Valley. Deep Springs is a small, isolated valley located about 35 miles east of Big Pine at an elevation of about 5,200' in the White Mountains. Wyman Creek empties into the valley in the north, and a number of springs discharge water into it as well. There is no surface drainage out of the valley, however, and so a saline lake occupies the lower, south end. Most of the valley is owned by the Bureau of Land Management, but it is also the location of Deep Springs College, a community of about 40 people that consists of a college, a cattle ranch, and an alfalfa operation. The combination of the valley's location between the White and Inyo Ranges, its saline lake and numerous springs, and its unusual geology make it a unique natural setting. This issue explores various aspects of the natural and social history of the Deep Springs Valley.

GEOLOGY

The name Deep Springs Valley, or Deep Spring Valley, as it was formerly known, is an oxymoron of sorts. Strictly speaking, a spring cannot be deep, as a spring is defined as a point on the surface of the earth where water issues forth. Be that as it may, the valley possesses a number of significant geological features. It has an anomalous trend: NE-SW, in contrast to the general N-S trend of other basins in the Basin and Range Province; it is underlain by up to 3000 feet of young alluvium, based on seismic refraction and gravity studies. The valley is marked along its southeast side by aa major normal fault, also originally named the Deep Spring Fault. The mountain front displays many of the features of a geologically recent fault, such as: prominent faceted-spurs, fresh-appearing fault scarps, wine-glass canyons transverse to the mountain front, several graben, springs, and sag ponds. These features are especially well displayed behind Deep Springs College and southwestward to the Deep Springs Lake.

A spectacular feature on the west side of the valley is the set of closely spaced folds and faults extending for 5 miles SW from the Payson Canyon Road. Charles D. Walcott, of whom much was said in the previous issue of the *Waucoba News*, was the first geologist, in 1895, to recognize these structures as Appalachian Mountain style folding. Now knows as the Poleta Folds, this area has over the past 25 years been used as an instructional area for geology students from at least 20 colleges and universities.

A major contact between granitic and sedimentary rocks is displayed 2 miles NW of the main curve in the highway (4.5 miles SW of Deep Springs College). The contact zone is illustrated by the brilliant white swath of metamorphosed rocks (largely marble) lying against somber-colored granite to the east. These same granites occupy all of the range on the east side of the valley.

- Clem Nelson

ENTOMOLOGY

Springs beside the lake support an amazing association of staphylinid beetles, over 40 species have been identified. I know nowhere else where even half that number can be found at a single location. The adults normally do not survive cold desert winters, but here the warm waters keep soil at a livable temperature year-round. At times in mid-winter a stone may be lifted from the snow and the underside found to be covered with a coating of many species of these beetles. Some years ago Deep Springs College constructed a fence around a portion of these springs to protect this scientifically valuable habitat from cattle grazing.

Near the north side of the lake is a small sand dune area which contains species of dune-inhabiting insects. Among these are certain click beetles, part of a complex of several species which occur on many dunes of the western Great Basin. These isolated populations vary from strong fliers in the north to flightlessness toward the south. Adults are active only in winter. Of the 17 dunes at which I've located populations, only Deep Springs Valley contains 2 species living together - a form with vestigial wings on the small area of best-quality sand, and a fully-winged form occurring over a wider area. This group of species is an open field of study for the future, as none have been named by science, the larvae have not been found, and their many physical and behavioral dune adaptations will provide fascinating inquiry.

- Derham Guiliani

HERPETOLOGY

The distribution of reptiles and amphibians in the White-Inyo region is considered to be divided into southern, northern, and western groups that display certain geographical affinities. In addition, there are wide-ranging species found throughout the region, and endemics that are encountered only in certain localities.

The herpetofauna of Deep Springs Valley consists of 2 species of amphibians, 9 lizards, and 9 snakes. The bulk of these species (13) are wide-ranging species that are common to all other desert valleys from the Granite Mountains in the south to Pyramid Lake in the north. There is, however, one species , the Zebra-tailed lizard , that is absent from the Deep Springs Valley but present everywhere else! Of the remaining species, 1 is southern, 4 are northern, 1 is western, and 1 is endemic.

The endemic species is the Black Toad, *Bufo exsul*. It is the most aquatic toad in the region, preferring to live in marshy areas around pools or springs, or in slow-moving streams. It is closely related to the Western Toad, but has been isolated from it for at least 12,000 years, since the last moist period of the Pleistocene. This toad is known only from the Deep Springs Valley; and because of its extremely limited distribution, it is protected by California law.

- excerpted from **J. Robert Macey and Theodore Papenfuss** in Hall (ed.) (*see below*)

BOTANY

There are many beautiful and conspicuous wildflowers and flowering shrubs that will be appearing very soon in the Deep Springs Valley. . Along the roadside will be seen the long-stemmed yellow heads of the bush sunflower, Encelia virginiensis ssp.actonii, along with the orange-pink blooms of the apricot mallow, Spheralcea ambigua. The prickly poppy Argemone munita has large white flowers on very prickly stems. The large white evening primrose Oenothera casespitosa marginata hugs the ground along the roadsides. Growing in the desert pavement as you descend into Deep Springs Valley is the deep vermillion of the desert mariposa, Calochortus kennedyi var, kennedyi, which is worth the trip all by itself. Desert peach (Prunus andersonii) can be found in the rocky perimeters of the valley with its lovely sprays of pink flowers . The indigo bush (Psorothamnus arborescens var. minifolius) is a mass of deep purple blooms on a low shrub on the valley floor.

-Carla Scheidlinger

PREHISTORY

Archaeological investigations in Deep Springs Valley and the surrounding highlands reveal a rich and varied history of prehistoric occupation. As nearly as can be reconstructed, the earliest use of the valley was limited to sporadic visits by small, hunting parties in search of mountain sheep,antelope, and other animals. The first permanent residents arrived perhaps 3,000 years ago, long after Owens, Fish Lake, and other areas had been settled. These early inhabitants established seasonal camps on the valley floor from which they collected many seeds, roots, and hunted in the adjacent mountains. Curiously, these ancient people made little use of pine nuts, preferring instead to move with the seasons in pursuit of more easily gathered plants and even more desirable game. Still later, at around A.D. 600, this nomadic lifeway came to an end and groups began to live in Deep Springs Valley year-round. Fairly substantial villages and more numerous temporary camps were now settled throughout the valley and Inyo-White Mountains, allowing families to gather seeds, roots, pine nuts, and hunt game as these foods became available in different areas. Sadly, this ingenious adaptation was ultimately cut short by the incursion of the first miners and ranchers into the valley in the 1860's. Dispossessed of their land and access too many traditional resources rapidly destroyed by livestock grazing, the Native inhabitants of Deep springs and adjacent areas were quickly incorporated into the prevailing market economy as miners, ranch hands, and general laborers.

-Michael Delacorte

CLIMATE

There is a weather station in the Deep Springs Valley that was operated between 1956 and 1985. Average annual precipitation during that period was 6.06 in., with a monthly maximum recorded of 4.86 in. in Aug. 1983. During 6 Dec 1966, 2.16 in. fell in 24 hours! 1969 was the record rainfall year, with 11.4 in. of precipitation. The pattern is of heavy precipitation in Jan-Feb, with a minor peak in Jul-Aug. June and October are the driest months. Snowfall averages 15 in. /year, although in 1969, they got 54 in. , with 20 in. coming on 24 January alone!

-excerpted from **Douglas Powell and Hal Klieforth** in Hall (ed.) (*see below*)

Around the Eastern Sierra

This winter has seen the addition of 4 birds to the Inyo County list. First was a Thick-billed Kingbird who normally winters from Mexico to Guatemala. It was seen in Lone Pine from 24 Dec 91 to 14 Mar 92. Next was a neck-banded adult male Trumpeter Swan in Tecopa on 23-25 Jan 92. This was a relocated bird taken from Idaho to Oregon and banded in late Nov 1991 at Summer Lake in the Klamath Valley. A Lesser Flamingo was seen on Haiwee Reservoir 12 Mar 92 and is rumored to have been there for a couple of weeks. This is an African bird which is a commonly kept zoo bird and therefore this bird is considered an escapee. The last addition was a pair of Wrentits in Sand Canyon on 15 Mar 92. The pair may be setting up house and may become the first breeding record for Inyo.

- Jo Heindel

BOOK NOTICE

We note with interest and pleasure the publication of Natural History of the White-Inyo Range, Eastern California. This comprehensive volume is edited by Clarence Hall of the White Mountain Research Station, and was published in 1991 by the University of California Press. The book includes chapters on physical features including climate and geology, plants (spectacularly illustrated with 234 color plates), animals, and archaeology/anthropology, all written by noted experts in their fields. The maps, generous use of color and black-and-white illustrations, and appropriate data summaries make this volume rich in information. The book is a welcome contribution to the general availability of knowledge for this region., and is highly recommended.

Next Edition

The next edition of the *Waucoba News* will be titled "Above Timberline", and will focus on life and landforms found in the high elevations of the Sierra Nevadas and the White Mountains. Contributions to this edition should be received by 1 July 1992.

Request for Information

Subscribers have suggested that the *Waucoba News* publish a list of researchers doing work in this area, since investigators in the field frequently make important observations are not necessarily connected to their primary study. If you know of someone conducting research in the Eastern Sierra region - or if you are such a person - please send name, address, and research topic and locality to the editor at *Waucoba News*.

Keep

Waucoba News

Founded by Enid Larson **Volume XVII July 1992**
Editor: Carla Scheidlinger 393 Mt. Tom Rd. Bishop, CA 93514
Subscriptions: Membership in Bishop Historical Society *OR* $5.00/year, payable to editor

This issue of the *Waucoba News* is devoted to life at high elevations. Here in the Eastern Sierra, we live in a valley at approximately 4,000' above sea level. To the east and west tower mountain ranges both of which exceed 14,000' in elevation! The crests of the Sierra Nevada and the White Mountains, although they are within 30 miles of each other in some places, are very different in many ways, the most important perhaps being that the latter is in the rain shadow of the former and is therefore much drier. What they have in common, however, is some of the highest peaks in the continental United States. In the case of the White Mountains, these high elevations are readily accessible to anyone who cares to get off a major highway and drive to them, as the White Mountain Road is paved to almost 11,000', and continues as a dirt road passable in a conventional vehicle up to the University of California Research Station at 12,500'! This research facility, along with its sister installation at Crooked Creek, provides a facility used by dozens of researchers each year to gather information about life at high elevations. In this issue, we report on some of the studies conducted there, as well as on information gathered by long-time residents of the Eastern Sierra who delight in the fine air and welcome solitude of these lofty regions that surround our valley.

ENTOMOLOGY

A great number of the alpine insects now living in the Sierra Nevada and White Mountains are closely related to species of the far north. Many northern forms, some circumpolar in distribution, spread southward along mountain chains during ice ages. These corridors of movement were broken into pieces whenever warm climates made lower connecting ridges unlivable, leaving us with a kind of 4-dimensional jigsaw puzzle of populations isolated for varying lengths of time. One example is the stonefly Lednia tumana, originally known only from the foot of a glacier in Glacier National Park in Montana but recently discovered in Canada as well as the Conness and Clyde Glaciers in the Sierra.

The north corridor into the White Mountains was primarily from the Sierra via Conway Summit, Bodie, and Montgovmery Pass. Some alpine species of plants and animals made it across while others did not. The arctic butterfly Oeneis ivallda extends the length of the high Sierra but is not present in the Whites even though conditions there appear excellent for it. Another alpine species, Hesperia miriamae, occurs on the highest peaks of both ranges. Lycaena phlaeas was long known only from a few locations in the higher reaches of the Sierra until a population of this butterfly was discovered in 1987 at about 12,000 ' in the Whites; Chlosyne whitneyi has similar habits to the above but is not yet recorded from the Whites even though its larval host plant is known to be there.

Adaptations to alpine conditions, both physical and behavioral, can be found in high altitude insects. Many have antifreeze chemicals in their blood. Flightless species are more frequent as are day-flying moths.

-Derham Guiliani

ARCHAEOLOGY

Until relatively recently, it was commonly believed that aboriginal use of land above the pinyon woodland regions was limited to hunting. But now it has been discovered that the Owens Valley Paiute had village sites well above timberline in the White Mountains. So far, 11 alpine villages have been found at elevations between 10,400 ft. and 12,640 ft. These sites are near to permanent water or on the edges of wet meadows, suggesting that these sites saw prolonged use.

These alpine villages were occupied by 3-5 groups of families for periods extending from mid-June until late August or so. They show signs of many activities, including stone working such as butchering, tool repair, and tool replacement. Grinding tools have been found in quantities that suggest that they were used to process foods actually found at the high elevations. Hunting activity also took place, for the major game animals such as deer and mountain sheep, but also for smaller animals such as marmots, ground squirrels, and jackrabbits.

The villages date from A.D. 600 to about historic times, indicating that they were a relatively recent development in the 10,000 year occupation of the region by native peoples. They were probably established in response to population pressures at the more hospitable lower elevations, and were abandoned when the white settlers decimated these populations in the 1860's, thus relieving the crowding that made retreat to these cold and forbidding heights necessary.

-excerpted from **Robert Bettinger's** chapter on native land use in The Natural History of the White -Inyo Range (Clarence Hall, ed.)

BOTANY

A recent paper by an authority on the White Mountain flora discusses some of the characteristics of the plant communities that inhabit the high reaches of this range. The paper considers the distribution of plant groups in the White Mountains as functions of moisture availability, altitude, local geographic restriction, and substrate characteristics. The

first 2 elements are the most significant segregators of plant distribution.

In particular, some of the stresses experienced by plants at high elevations included excessive exposure to ultraviolet radiation, extremes of temperature, high winds, and a short growing season (as little as 45 days). These stresses tend to produce a very particular assemblage of plants. In fact, alpine floras tend to show a remarkable similarity around the world. There are many of the same species and genera in the White Mountains as there are in mountain ranges of Eurasia - many more than are held in common between lowland floras of these regions.

One of the interesting aspects of high alpine habitats is their relative isolation from other such habitats. Functionally, they are "islands" emerging from lowland regions that may be inhospitable migration routes for plants. As a consequence of the relative isolation from other alpine habitats, the high elevation flora of the White Mountains exhibits a slight excess of endemism (species evolved "on location"). In a similar mountain range, the Charleston Mountains, there are 31 endemic plant taxa - an extremely high number for a small area.

There are some species that are held in common with the Rocky Mountains to the east - one of these, the low-growing daisy Townsendia condensata, is found in the northern rockies and in the Whites, but not in between! What is also evident from a comparison of high-elevation plants in the Sierra Nevada with those in the Whites and the other Great Basin mountain ranges is that the Whites have served as a corridor of plant migration between the Sierra Nevada and the other ranges to the east. Indeed, the north half of the White Mountain alpine flora in the Pellisier Flat region is more similar to a Sierra Nevada alpine flora (as in the Piute pass region) than it is to the nearest major Great Basin alpine flora in the Toiyabe Mountains.

Diversity in the plant community tends to be low at high elevations. This can be explained by the smaller areas occupied by higher zones in the Whites, as well as by the decrease in habitat diversity and the increase in habitat severity. What is lacking at high elevations is a large component of exotic, or non-native, plant species. The alpine flora has been relatively insulated from the impacts of introduced plants brought about by heavy human use and livestock grazing.

-excerpted from **Jim Morefield** (1992) "Spatial and ecologic segregation of phytogeographic elements in the White Mountains of California and Nevada". J. of Biogeography 19: 33-50

AROUND THE EASTERN SIERRA

Derham Guiliani reports:

Everywhere I have gone where pinyon pines grow, they are producing large numbers of cones for this fall. I have not before seen as large crop produced 2 years in succession.

Two species of yellow butterflies (Phoebis sennae and Colias cesonia, normally found in Arizona and Mexico, appeared here in fairly large numbers the first I've seen of them in my 22 years living here.

The Mammoth Times reports:

The boom in the painted lady butterflies is a dramatic sign that the state's water picture is brightening. A Stanford University biologist states that the butterflies have a "one way in search of more food and a place to lay their eggs, after having eaten up available food plants (weedy members of the thistle family) in the south. The migration was put at several billion individuals - 100 to 1,000 times the normal population - and numbers have not been so high since 1965. The painted lady is the most wide-spread species of butterfly in the world, and is found in Africa, Asia, and South America.

News about birds:

This past spring once again saw a number of rare birds visit Inyo County. Among them was a worm-eating warbler near Big Pine (3rd record), a white-eyed vireo at Deep Springs (2nd record), a Mississippi kite at Furnace Creek Ranch (9th record, but the first in 9 years), and 3 Parula warblers together near Big Pine. These are all essentially birds from the eastern United States. Early summer has 2 juvenile ospreys in a nest at Tinnemaha Reservoir. A pair of bronzed cowbirds (2nd record) were at Tecopa as was a white-eyed vireo (3rd record). Pacific-slope flycatchers were found breeding in Oak Creek Canyon near Independence. This is a new breeding bird for the county. Least bitterns (only recently documented as breeding in Inyo County) are again nesting in the Owens Valley.

Tom and Jo Heindel

CLIMATOLOGY

It has been a dry and a warm spring in this region, according to records compiled by weather observers in Reno. Although southern California experienced rainfall in excess of 150% of normal, the eastern Sierra had less than 75% of the normal precipitation during the period of March to May, 1992, with less than an inch of precipitation falling in portions of the region. Temperatures, however, were 4-6 inches higher than seasonal averages in our area for the same time period. Average temperatures at Mono Lake during May was 58 .2 degrees; Death Valley's average was 90.7, and Mammoth had 50.7.

NEXT ISSUE

The next issue of the *Waucoba News* will focus on **endangered species**, both plant and animal. It is the intention to discuss what the factors are that contribute to the rarity and endangerment of various species in the Eastern Sierra region. Anyone with information they wish to contribute to this issue should address it to the editor.

Waucoba News

Founded by Enid Larson **Volume XVIII December 1992**

Editor: Carla Scheidlinger 393 Mt. Tom Rd. Bishop, CA 93514

Subscriptions: Membership in Bishop Historical Society *OR* $5.00/year, payable to editor

This issue of the *Waucoba News* focuses on rare and endangered species. Although extinction is a normal part of evolution, the activities of mankind during the past century or so have dramatically increased the rate at which species are going extinct worldwide. Rarity may be a sign that a species is in danger of imminent extinction due to human influences; or it may just be an indication that the species has adapted to, or even evolved under, very specific conditions that are themselves rare. Here in the Eastern Sierra we have a variety of rare species that are of great biological interest.

BOTANY

Because of the relative immobility of plant species, a number of natural phenomena contribute to plant rarity. In the Eastern Sierra, these include: 1) climatic warming, isolating cold-adapted species on high mountain tops (for example, Polemonium chartaceum and Arabis pinzlae in the White Mountains) or otherwise reducing and fragmenting their habitat (Dedeckera eurekensis); 2) adaptation to rare or specialized habitats such as sand dunes (Swallenia alexandrae), the chemical deserts of limestone and dolomite outcrops ICryptantha roosiorum, Caulostramina jaegeri, Perityle inyoensis), mineral-rich clays (Phaceila monoensis, Streptanthus oliganthus), or wetlands; 3) random extinctions, and 4) recent evolution.

Desert wetlands, though usually harboring a surplus of highly mobile, cosmopolitan plant species, are also isolated enough in distance and soil types to produce local endemics, such as Sidalcea covillei and Astragalus lentiginosus var. piscinensis of Owens Valley, and several threatened and endangered plants of the Ash Meadows area in southwestern Nevada and adjacent southeast Inyo County. Sometimes certain factors act in concert. One of the rarest plants in the region, the recently described mustard Draba monoensis, has been found only in wetlands above 13,000 feet in the White Mts.

Other rare endemics, such as Horkelia hispidula of the White Mtns., occur in habitats relatively common for the region, in this case shallow subalpine granitic gravels. Their rarity might best be explained by such phenomena as random extirpation of populations once widespread, or in-place evolution of new species.

Though human activities do not seem greatly to affect rates of evolution, they can significantly accelerate extinctions, often unnecessarily. For instance, livestock grazing as usually practiced in the Eastern Sierra contributes to plant rarity, though it need not. When livestock are grazed continuously through plants' reproductive seasons for many years in a row, thereby halting reproduction and depleting seed banks, or when grazing is so concentrated as to physically destroy habitat and permit invasion of weedy and/or exotic species, many native species predictably decline or disappear. Riparian zones and wetlands are especially vulnerable to such impacts. Grazing programs could be changed to avoid these effects, and also to selectively shift grazing onto stands of exotic species which have already invaded, as one part of a restoration effort for native vegetation.

Other impacts to rare plants, such as water diversions, building over habitat, surface mining, abuse of off-road vehicles, and introduction of invasive exotic species, are well known. Less apparent are indirect effects like impacts to the birds or insects needed to pollinate some plant species.

Many national, state, and local agencies, both public and private, work to track and protect rare plants in California and Nevada. Their effectiveness varies with such factors as commitment, funding, and jurisdiction. For instance, under the Endangered Species Act, the U.S. Fish and Wildlife Service does not have jurisdiction over plants on private lands, though it does for animals. In the long run, it is much less expensive both biologically and economically to prevent species from unnecessarily becoming endangered or threatened in the first place, than to try recovering them once they are.

-Jim Morefield

PLANTS AND POLICY

California has led the nation in establishing a rare plant program. It all began when G. Ledyard Stebbins started a card file of California plants which had a known distribution of less than 100 miles. Early in the 1970's I received a box of photos of selected herbarium labels from the Inyo-Mono area representing taxa which had seldom been collected. I found that some of the labels for this region were of plants which were actually quite common. That indicated that more botanical work was needed here. I began by reviewing herbarium specimens in the Jepson Herbarium.

In 1973, the California Native Plant Society (CNPS) created a Rare Plant Project Advisory Committee. Alice Howard, the chair of that committee, effected the passage of the California Native Plant Protection Act, which required the state Department of Fish and Game (CDF&G) to establish criteria for determining whether a plant is rare or endangered, among other protective measures. In 1974, a group of amateur and professional botanists met to begin a mapping effort of rare plant populations. This was the beginning of what later became known as the Natural Diversity Data Base. At that time, little was known about the flora of eastern California, and my recommendations were not questioned. The group published a list of rare and endangered vascular plants of California in 1974, which included 1392 species, subspecies, and varieties that were determined to be endangered, rare, or of limited distribution.

By 1979, the U.S. Fish and Wildlife Service cooperated with the CNPS to create a code that rated plants as to rarity, endangerment, vigor, and distribution. In 1980, a new list of rare and endangered plants was published, which has been updated 4 times since.

CNPS still plays the major role in the

botanist working for the CNPS cooperates with the CDF&G rare plant program to keep the Natural Diversity Data Base up-to-date.

The next rare plant inventory will be published in 1993. In addition to the species described above, Astragalus platytropis will be added to the list, and Eriogonum ampullaceum will be removed. Currently, there are 170 taxa from this region listed as rare and/or endangered, 67 of them rated as very rare.

The cooperative working relationship between CNPS, the Nature Conservancy, and the CDF&G provides a strong force for the protection of our native species and their habitats.

-Mary DeDecker

INVERTEBRATES

Although many species of vertebrates and plants have been officially listed under the State and/or Federal Endangered Species Acts, very few invertebrates have received this status. The CDF&G Natural Diversity Data Base (August 1991) indicates that one species of crayfish and one shrimp are State-listed as Endangered and one snail as Threatened. Federally listed as Endangered in California are the same crayfish and shrimp plus 7 butterflies, with one additional butterfly proposed; there are 2 butterflies ,1 moth, and 2 beetles listed as Threatened.

Candidates for possible Federal listing include 166 California invertebrates. Among these are about a dozen eastern Sierra species, half of which are in Death Valley.

One candidate is a green and gold beetle (Miloderes nelsoni) known only from the Eureka Valley sand dunes (which also support several other endemics). Another is a large scarab, the Saline Valley June Beetle, a relatively recent discovery restricted to sandy areas on the floor of the Saline Valley.

Another candidate, the Mono County checkerspot butterfly, used to be found in the vicinity of Mono Lake but has not been observed for over 30 years. The Mono Lake brine shrimp is listed as "recommended for status as a candidate for federal listing."

Not in the Data Base list is the Apache Silverspot, thought by many to be the most beautiful butterfly in western United States. Restricted to a few wet meadows from Bishop to Carson City, it has been considered for listed status due to disappearance of some populations.

Candidates for official protected status most often occur in fragile habitats of small size such as sand dunes, springs, and meadows. Also, rare or restricted plant species, host to insects specific to them, must remain at population numbers sufficient for continuous insect viability. If alterations to the above habitats are not severe, nor different in kind from evolutionary history, the species present are capable of taking care of themselves just as they have for thousands of years.

-Derham Guiliani

BIRDS

The **Least Bittern**, a species of special concern (SSC) to the CDF&G, continued to nest at Billy Lake, as reported by Andrew Kirk of Independence. He found 5 nests there and 1 at Cottonwood Marsh, each raising 2-6 young.

A pair of **Osprey** tried to nest again at Tinnemaha Reservoir, and the 3 juveniles disappeared before fledging.

Five **Norther Harriers** (SSC), 4 juveniles and an adult male, were seen at Warm Springs, which seems a reliable nesting locality.

Three immature **Cooper's Hawks** (SSC) found together at Camp Inyo near Big Pine were locally fledged in July and were seen during August on 10 occasions.

Fewer **Swainson's Hawks**, a state threatened bird, were seen this summer than in the recent past, though a couple were immatures and probably fledged locally.

Two **Peregrine Falcons**, listed as endangered by both the state and federal governments, were seen at Tinnemaha. The bird seen 17 August was wearing a blue leg band while the 17 September bird was a darker race.

Snowy Plovers (SSC) were more abundant than in any recent years with 21 at Cottonwood Marsh on 3 0 July. They were found from 7 May to 26 August at Owens Lake, Tinnemaha Reservoir, and Tecopa Marsh.

Yellow-billed Cuckoo, a stat e endangered bird, had numbers way down from last year. Singles were found at Furnace Creek Ranch, Tinnemaha , and Tecopa from 21 May to 2 July. Two were found at Baker Meadows, site of nesting last year, on 15 July, but no young or nesting behavior were observed.

Willow Flycatchers, a state endangered and federal sensitive species, were seen from Furnace Creek Ranch, Glacier Lodge, Deep Springs, Birch Creek, Baker Meadows from 9 May -16 August. Breeding success is unknown.

Brown-crested Flycatcher (SSC) was seen in Tecopa on 1 and 2 July.

And entire nesting colony of **Bank Swallows**, a state threatened bird, was bulldozed out just north of Bishop and Niklaus and Niklaus Gravel. There were over 80 birds and over 100 nest holes.

Two **Bell's Vireos** were seen at Furnace Creek from 17 May to 3 July. The Arizona Bell's vireo, *Vireo bellii arizonae*, is a state endangered bird; the Least Bell's vires, *Vireo bellii pusillus*, is both state and federally endangered. The vireos collected at Furnace Creek Ranch in 1891 (yes, 100 years ago!) were identified as *pusillus*. There is some questions now as to which is being seen there now. A study is in progress.

Yellow-breasted chat (SSC) seems to have done well this year in Inyo County. Six were singing at Furnace Creek Ranch protecting their territories. One or two singling birds were observed on every trip to Baker Meadow during May, June, and July. Successful nesting was probable. No chats were seen in August.

A few **Summer Tanagers** (SSC) were seen throughout the county. A pair were seen at Baker Meadows in May. No young or nesting behavior were observed. Adult males were seen at Pine Creek, Independence, and Big Pine and an immature male was seen near Tecopa 1 July.

Three singing male **Virginia's Warblers** (SSC) were in Wyman Canyon where they regularly breed.

- Tom and Jo Heindel

Waucoba News

Founded by Enid Larson **Volume XIX April 1993**

Published by Alan Kabat

Editor: Carla Scheidlinger, 393 Mt. Tom Rd., Bishop, CA 93514

Subscriptions: Membership in Bishop Historical Society *OR* $5.00/year, payable to editor

We are thrilled this year to be finally at the end of a severe drought that has lasted for 6 years here in the Eastern Sierra. Elsewhere in California and the west, the drought has been felt as well, resulting in water rationing measures in cities and for agriculture. In the desert areas of Inyo and Mono Counties, the dry climate that we are accustomed to has been exacerbated by the drought, and many organisms normally adapted for dry climates have been severely stressed. Following this season of greater-than-normal precipitation, changes in populations of these organisms is expected. Many naturalists are eagerly anticipating a flush of growth in vegetation that has been dying back, accompanied by increases in the animals that depend upon them for food and shelter. There will be a lot of field work this season, by amateurs and professionals alike. Some of these naturalists share their expectations and insights with you in this issue: "After the Drought."

Changing Weather Conditions

Weather data provided by the University of Nevada Reno indicate that 1993 winter precipitation for our area is substantially above normal. Bishop received 2.03 " of precipitation in January, compared to an average of 1.32" for theat month; February delivered 2.64", up from the 0.98" average. The total precipitation for the 1992-93 hydrological year as of March 1 was up to 6.67", compared to an annual average that totals only 5.61". And the spring rains, whcih will be included in the annual average, haven't even arrived yet!

-from **Hal Klieforth**

Desert Drought Recovery

The extreme drought conditions since 1986 culminated in widespread die-off of shrubs and trees throughout the desert and mountains. Population numbers of rodents and insects dropped to record lows. This situation began to reverse in 1992, when, after probably the driest winter ever recorded for Owens Valley, several inches of rain in March halted the catastrophic declines. Then plant life responded to near-average winter rains of 1991-1992 far beyond expectation, giving the appearance of having stored the growth potential denied them during the drought years and releasing it all that spring.

A year-by-year, 3-part progression can occur during the wet years following a drought. First is produced an abundance of plants and seeds. Next, the insects and rodents build to large numbers in response to food supply. The stage is then set for the third step as food chains progress upward--hawks, snakes, foxes, weasels, etc. are now able to achieve high survival for their young while spiders, scorpions, lizards, and amphibians utilize the insects.

Everything points to 1993 as becoming a truly remarkable year. A great diversity of wildflowers, butterflies, birds, chipmunks, and innumerable other species should approach peak numbers. A year such a this creates great opportunities for discovery, with the chance to observe behavioral mechanisms of desert species seldom otherwise seen. It offers biological researchers the chance to learn more about their particular desert subjects than do several "normal" years combined. I, for one, intend to spend all available time immersed in the unfolding of this rare event.

-Derham Guiliani

Fishes

Compared to the 5 billion year existence of the Earth, or even the 10-20 thousand years since the end of the Pleistocene, a six-year drought constitutes far less the blink of an eye. Our native fish populations learned long ago how to put up with such things by evolving high reproductive potentials to allow them to expand quickly to fill habitats. as they become available. The pupfishes, for instance, may produce as many as 5 generations in a given year, a potential for population growth seldom realized now because of vast destruction and alteration of their native habitats.

Problems with droughts occur when we deal with artifacts constructed by humans and the sportfishing built around them. Reservoir levels drop lower, naturally-produced fish populations diminish, and streams flow at abnormally low levels, which may decrease spawning success and food production. In a nutshell, now that the recent drought is history (at least until next year), we may expect brimful reservoirs to be stocked with trout from DFG hatcheries. Runoff flows will make spring angling more difficult, however, and may interfere with spawning success by providing *too* much water. In addition, there will be ponds in the lower Owens Valley that will quickly fill with young black bass, which unfortunately for anglers will not reach lunker size until 1994. Hatchery trout for roadside water, however, will be available for instant catching.

Backcountry lakes, which are essentially bathtubs of water without dams to draw them down artificially, remain largely unaffected by droughts. Even in droughts there is usually enough inlet flow to accommodate spring spawners, and backcountry fall spawners (primarily eastern brook trout) do not require running inlets or outlets. They spawn just fine in spring areas on lake bottoms.

The native fishes (Owens pupfish, chub, dace, and sucker), hopefully secure in their protected refuges, will likely wonder what all the fuss is about and will reminisce about days of yore when they had the Valley all to themselves before Europeans showed up and instilled within Inyo-Mono a very different set of values. Naturalists are hopeful that additional water this year will help in the recovery of mountain amphibian populations, which for unknown reasons have dropped to alarmingly low levels in recent years.

-Phil Pister

Bighorn Sheep

For the Mt. Baxter bighorn sheep population in the southern Sierra Nevada, the 1987-1992 drought period has resulted in a remarkable change in migratory behavior. Between 1977 and 1986, the minimum number of sheep that could be accounted for in late winter and spring on the wintering area south of Sawmill Canyon ranged from 105 to 150. The second highest such count occurred the year before the drought began. During the drought years, the number using this low elevation range dropped precipitously reaching lows of 4 and 5 in 1991 and 1992, respectively.

In avoiding this winter range, these sheep also have largely eliminated risk of predation by mountain lions. However, a major tradeoff in diet quality has resulted. Prior to the drought, this population annually had 2 major pulses of high nutrient intake: one on the winter range in early spring, and a second one in the alpine in summer. With only one of these occurring in recent years, a number of changes have been evident within the population: (1) growth rates have dropped to where 2-year old sheep in summer are now frequently the size that yearlings previously were; (2) lamb production, measured as lambs:100 ewes in the alpine at the end of the lambing season, has averaged below pre-drought levels; (3) lamb survivorship, measured as yearlings:100 ewes in early summer, has been consistently low; and (4) the lambing period has shifted steadily later, from a previous peak in the first half of May to a peak in the first half of June by 1991. Poor survival of lambs probably has been caused by a shorter growing season for lambs before winter, coupled with the greater rigors of wintering in the alpine.

In terms of a demographic system, these changes represent a discontinuity. Since the 2 consecutive drought years in 1976-77 did not produce such a change in migratory pattern of this sheep population, this recent change appears to be a behavioral shift within the sheep population allowed by numerous consecutive drought years. The later lambing dates mean that demands for higher nutrient intake in late gestation occur a month later on average, which translates to reduced incentives for use of the winter range in spring, where nutrients abound. Since these nutrients are also a major influence on fall body reserves, which determine both the timing of ovulation and lambing, as well as whether a ewe will skip a reproductive season, the population may be caught in this new regime. This suggests a system with 2 separate stable equilibria. If so, a fundamental questions is what it will take to shift back to the other phase.

In contrast to the Sierra Nevada, the bighorn population in the White Mountain Peak area has continued normal migratory behavior through the drought period. This is not surprising. Mountain lion predation is low in this area and this mountain range is perpetually in a winter drought compared with the Sierra Nevada.

-John D. Wehausen

Small Mammals

The spring rains of 1992 reversed the steady decline in rodent populations brought on by the drought. Those rodents fortunate enough to live among the pinyons are now set for a true boom in their populations. As of mid-March, indications of pinyon mouse litters and chipmunks have already been observed. This is a substantial jump on the season, and indicates that these rodents have probably been busy throughout the winter enjoying the pinyon nuts beneath the snow.

While it requires 2 good years of moisture to produce a pinyon nut crop, don't necessarily expect another good one soon. Michael L. Morrison (UC Berkeley) points out that good pinyon nut crops will occur only every 7 years or so even if conditions remain uniformly good. For the pinyon tree, this strategy ensures the survival of its progeny by keeping animal populations low enough so that the tree can overwhelm the nut consumers with excess nuts during a production year. Thus, expect rodent populations to peak this season, even if the drought remains "broken."

-Joe Szewczak

Plants

Those of us who are privileged to live where we are surrounded by open spaces are witness to the renewal of plant life after a long d drought. Even desert flowers need water, so it seems a miracle of survival to see them resume where they left off when abundant moisture returns to the soil. An abundance of seeds of small annuals have waited until conditions are favorable for them to sprout and pass the seedling stage. Shrubs which appeared to be dead are putting forth green sprouts and flower buds. There is a green cast to long drab flats and slopes. A sense of well-being prevails, along with the concerns that it may not last. The plants which are in trouble, and have been since before the drought, are those which require moist habitats. Remnants of large populations still survive, however, having been given special attention during the drought years. Two such species are endemic to the Owens Valley, meaning that they do not occur elsewhere, but they have been close to extinction. They are Owens Valley mallow, *Sidalcea covillei*, and alkali mariposa, *Calochortus excavatus*. This wet year should give them a new lease on life.

-Mary DeDecker

Birds

Breeding bird surveys are an excellent key to understanding the quality of the environment. If the physical conditions, which include rainfall, are not conducive to plant growth and the resultant seed production, then those organisms dependent upon them will be less likely to remain and/or attempt to breed. After a drought, plant communities can make a remarkable comeback and so too does the dependent animal life.

During the drought years of the seventies, this relationship was observed on the breeding bird surveys conducted in Inyo County. Dry winters would result in fewer birds defending territories and raising young the following spring. In 1990 and 1991 the conditions were so desiccated on the east slope of the Last Chance Range that over a distance of 5 miles (10 stops) not one bird could be located. Then the "March Miracle" of 1992 occurred and early May saw dozens of birds recorded in this same 5-mile stretch. By June, juveniles were abundant. It is probable that 1993 will see and even higher productivity rate for both plants and their dependent animals.

-Jo and Tom Heindel